

Clean Bay Strategy Report January 2000

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EXECUTIVE SUMMARY

The City of San Jose (City), as administrator for the San Jose/Santa Clara Water Pollution Control Plant (Plant), implements the National Pollutant Discharge Elimination System (NPDES) permit¹ requirements. This report documents progress on permit elements during the period July 1, 1999 to December 31, 1999.

The City's strategy to implement the NPDES permit focuses on integrating local and regional programs to achieve cost-effective protection of the South San Francisco Bay (South Bay). This report is organized based on the elements shown in Figure 1 and described below:

- Flow reduction;
- Pollutant reduction;
- Research and special studies;
- Regional cooperative efforts; and
- Public outreach.

For further details on the schedule for completion and a current status on the various elements, refer to Appendix A.

Some of the highlights for this reporting period include:

- Working with stakeholders on the copper and nickel TMDL process;
- Maintaining the average dry weather flow below 120 mgd; and
- Working closely with the Planning Department on new development and green building issues.

Flow Reduction

Through a combination of water recycling, water conservation efforts, and seasonal water storage, the Plant remained under the 120 million gallons per day (mgd) average effluent flow for the 1999 dry season. The City is evaluating flow reduction strategies to prepare for the 2000 dry season. The following major efforts are contributing to the success of the flow reduction campaign:

- Industrial Recycle/Reuse including the Flow Audit Studies
- Indoor Water Conservation programs accomplished 0.725 mgd flow reduction
- SBWR delivered an average of 6.1 mgd between May and October 1999.

¹ Developed in accordance with Board Order No. 98-052, adopted by the San Francisco Bay Regional Water Quality Control Board in June 1998

Pollutant Reduction

The Plant has met its pollutant effluent limits throughout the reporting period. There was a reduction of 174 pounds copper and 258 pounds nickel discharged to the South Bay from 1998 to 1999.

For the period between January and December 1999, the Plant's effluent concentration values for copper averaged 3.8 µg/l, ranging from 1.4 - 8.2 µg/l. Nickel averaged 6.3 µg/l, ranging from 4.0 - 11.0 µg/l.

These results are attributable to both high-level plant performance and a very effective pretreatment program.

The following major efforts occurred during the reporting period:

- The New Industry/Development program provided significant input into the City's development review process;
- Workplans on Headworks Loading and Organics Source programs were implemented;
- Upstream monitoring continued to characterize flow to the Plant from the various sectors; and
- Industrial Partnerships engaged dischargers in evaluating innovative pollutant reduction techniques.

Research and Special Studies

The City is funding technical studies to support the development of a Total Maximum Daily Load (TMDL) for copper and nickel in the South San Francisco Bay. During the reporting period, the stakeholder group accepted the draft impairment assessment report that concludes that impairment of the South Bay due to copper and nickel is unlikely and is now pursuing the development of action plans to maintain beneficial use attainment. Reaching consensus on the action plans will be the focus of meetings in 2000.

Pursuant to NPDES permit requirement, the City recently submitted a workplan for a bioassessment study. The bioassessment study will develop tools for assessing the health of the South Bay ecosystem. The study will begin after approval of the workplan by the Regional Board.

The City is continuing salt marsh conversion assessment studies and has additionally begun collecting physical data in the marshes to aid in determining the relative influences of environmental and anthropogenic factors affecting changes in marsh type.

Regional Cooperative Effort

Progress on the Santa Clara Basin Watershed Management Initiative (WMI) is continuing. Highlights over the last six months include:

- Consensus-building on the Watershed Assessment framework.
- Development of a vision.
- Formation of a stakeholder group to address the Guadalupe River mercury TMDL issues.

Additionally, the City's pilot Watershed Grants program is providing resources and support for community and stakeholder involvement in the local watershed management process.

Outreach

During the reporting period, Outreach supported the important efforts highlighted above by focusing on flow reduction and water conservation, watershed management education, improvement to the web site, the Industrial User academy and the Industrial User newsletter.

Next Steps

Over the next six months, priorities will be further evaluation of flow reduction strategies, including long-term planning for water recycling and water conservation programs, and closure on the copper and nickel TMDL process (Section III-C2). In addition, the City will pursue special studies, including marsh studies (Section III-D) and the bioassessment program (Section III-I) outlined in this report, which will contribute significantly to the body of knowledge about the South Bay ecosystem. The City believes that decisions must be based on data and will share its learning with stakeholders.

Other program efforts for the next six months will focus on the following:

- Development of final reports on Headworks Loading and Organics Source analysis;
- Continued industrial cooperative efforts to address pollutant loading and flow;
- Increasing stakeholder involvement and outreach; and
- Ongoing efforts to reduce flow.

Figure 1 : Clean Bay Strategy

January 2000 Report Elements

<i>Section</i>	<i>Highlights for the Reporting Period</i>
FLOW REDUCTION	Completion of Flow Audit Studies Continued industrial cooperative effort
POLLUTANT REDUCTION	Completion of: Headworks Loading Analysis, and Organic Source investigation
RESEARCH AND SPECIAL STUDIES	Submittal of Bioassessment Study Plan
REGIONAL COOPERATIVE EFFORTS	Hiring of Project Coordinator Watershed Assessment framework Vision development for WMI
PUBLIC OUTREACH	Wastewater Paths Poster Residential Web page Outreach to Hispanic Audiences School and Youth Education

ABBREVIATIONS

Audit	Flow Audit Study
BADA	Bay Area Dischargers Association
BAPPG	Bay Area Pollution Prevention Group
BASMAA	Bay Area Stormwater Management Agencies Association
BMP	Best Management Practice
BNR	Biological Nutrient Removal
CBS	Clean Bay Strategy
City	City of San Jose
EIR	Environmental Impact Reports
ESD	Environmental Services Department
FIP	Financial Incentives Program
FY	Fiscal Year
IU	Industrial User
MAS	Mass Audit Study
MFD	Multi-Family Dwelling
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
Plant	San Jose/Santa Clara Water Pollution Control Plant
PAHs	Polycyclic Aromatic Hydrocarbons
PCB	Printed Circuit Board
PCBs	Polychlorinated Biphenyls
POTW	Publicly Owned Treatment Works
Regional Board	San Francisco Bay Regional Water Quality Control Board
RMP	Regional Monitoring Program
South Bay	San Francisco Bay, South of Dumbarton Bridge
State Board	State Water Resources Control Board
SBWR	South Bay Water Recycling
The Program	Santa Clara Valley Urban Runoff Pollution Prevention Program
TMDL	Total Maximum Daily Loads
TSS	Total Suspended Solids
TOC	Total Organic Carbon
TWG	TMDL Work Group
ULFT	Ultra-Low Flush Toilet
URMP	Urban Runoff Management Plan
US EPA	United States Environmental Protection Agency
Water District	Santa Clara Valley Water District
WMI	Santa Clara Basin Watershed Management Initiative

UNITS OF MEASURE

af/yr	acre-foot per year
ccf	hundred cubic feet
gpd	gallons per day
lbs/day	pounds per day
lf	linear foot
mgd	million gallons per day
mg/l	milligrams per liter
µg/l	micrograms per liter
ppt	parts per trillion

I FLOW REDUCTION PROGRAM

The original San Jose Action Plan² was approved by the Regional Water Quality Control Board (Regional Board) and adopted by the City in 1991. The three main components of that plan were the marsh mitigation, water conservation and water recycling. A Revised South Bay Action Plan³ was adopted in 1997 and incorporated in the 1998 NPDES⁴. The revised plan called for expansions to the indoor water conservation and water recycling programs plus the addition of programs for industrial water recycling and reuse; inflow and infiltration reduction; and environmental enhancement pilots.

A detailed look at the progress in each program is presented in the subsections that follow. The combined efforts of these programs have brought the 1999 average dry weather effluent flow (ADWEF⁵) below 120 mgd, as shown in Table 1.

Table 1 : 1999 ADWEF

MONTH	FLOW, MGD		
	INFLUENT	DIVERTED*	EFFLUENT
August	128.6	8.8	119.8
September	126.4	9.8	116.6
October	124.3	12.3	111.9

* Includes Recycled Water to SBWR distribution system, seasonal storage at the Plant, and Plant irrigation

I-A SOUTH BAY WATER RECYCLING

South Bay Water Recycling (SBWR) is an on-going effort to reuse high-quality effluent from the Plant. The goal of the program is to protect endangered species habitat at the southern end of San Francisco Bay, and to provide a reliable, drought-proof supply of recycled water for the benefit of the community.

² In accordance with Board Order 91-152

³ In accordance with Board Order 97-111

⁴ In accordance with Board Order 98-052

⁵ Average Dry Weather Effluent Flow is the lowest average flow rate for any 3 consecutive months between May and October

Findings and Accomplishments

Monthly recycled water usage during the 1999 dry weather season averaged 6.1 mgd and peaked at 8.8 mgd in October 1999. Actual recycled water usage for this reporting period is shown in Table 2.

This reporting period, 39 new recycled water customers were brought on-line, bringing the total number of connected customers to 222. Of these, major new sites included a golf course, an amusement park, a landfill, and five City public parks. New customers increased the connected Average Day Maximum Month (ADMM) demand for recycled water from 6.5 to 9.4 mgd. ADMM is the peak monthly average flow expected for a recycled water customer, and is used to determine the peak recycled water demand for customers during the dry weather flow period. Peak months typically occur during July or August. This value can be expected to vary by $\pm 25\%$, due to variability of temperature, rainfall, and evapotranspiration.

The construction of a recycled water demonstration garden at Guadalupe River Park and Gardens commenced during 1999, and project completion is expected during Spring 2000. This project is designed to promote the use of recycled water in the Santa Clara Valley by demonstrating that recycled water can be used effectively and successfully in local landscapes.

Table 2 : Recycled Water Usage

MONTH	MONTHLY USAGE
	MGD
May-99	3.4
Jun-99	4.5
July-99	6.4
Aug-99	6.8
Sep-99	7.1
Oct-99	8.8

Next Steps

The City has identified a number of projects to be implemented in the near-term that will expand the recycled water distribution system within San Jose, Santa Clara and Milpitas. A conceptual design is under review, and construction of the first alignments is slated to begin during late 2000. System storage, operational reliability and system looping also are being incorporated into the expansion to minimize operation and maintenance costs, meet the minimum SBWR distribution system design criteria, and continue the reliable delivery of high-quality recycled water to current and future customers. Environmental

documentation on the first set of projects has been completed, and work has been initiated on a Negative Declaration for the location of future recycled water storage tank sites.

This near-term expansion effort is designed to add approximately 10 mgd ADMM of demand over the next five years, at a projected cost of \$180,000,000. About \$90,000,000 has already been budgeted by the Plant's tributary agencies for this effort, with the balance to be sought from other federal, state and local entities. In conjunction with this expansion effort, a parallel effort is underway to identify the mid-term (5-10 year) alternatives and long-term (10-20 years) strategies to reuse up to 100 mgd during the dry weather season. These studies are being carried out in conjunction with the Bay Area Regional Water Recycling Program and the Santa Clara Valley Water District's Integrated Water Resources Plan. This coordination will ensure that recycled water is incorporated into the overall Santa Clara Valley water supply plan, and developed to maximize the multiple benefits of water reuse.

I-B INDUSTRIAL RECYCLE AND REUSE

The objective of the Industrial Recycle/Reuse Program is to ensure that Industrial Users (IUs) in the Plant's service area are reducing use of potable water, recycling their own wastewater, or using SBWR in their facilities to the largest extent possible.

For this reporting period, efforts were focused on reviewing submitted Flow Audit Studies (Audits).

Findings and Accomplishments

I-B1 FLOW AUDIT STUDY

Fifty-seven companies were identified as discharging over 100,000 gpd in November 1998. The flows were based on 1997 data and were obtained from the Pretreatment Program's Source Control database and water use data provided by water purveyors.

Of the 57 companies, 17 closed their facilities or ceased their manufacturing operations including Del Monte, National Semiconductor, and four of the five Komag facilities. Three companies were exempted after verifying that their discharge to the sewer system was under 100,000 gpd. Of the remaining 37 facilities, 36 facilities submitted their Audits. The Audits are currently being reviewed for completeness and accuracy.

The Doubletree Hotel in San Jose has not submitted their Audit yet. Enforcement action will be taken in January 2000.

Review of the Audits is taking longer to complete because of the quality of the submittals and the difficulty with verifying flows. A detailed list of the companies and their status is included in Appendix B. As indicated in Table 3, of those Audits that were complete enough for project review, more than 50 potential or active projects were listed with an associated flow reduction of 647,000 gallons per day (gpd). Additional projects listed as not cost-effective may be found feasible with additional analysis and/or financial incentive.

Table 3 : Flow Audit Study

PROJECT TYPE	# FACILITIES	ESTIMATED FLOW REDUCTION
		GPD
Completed	9	379,400
< 5 Years Payback	51	647,200
> 5 Years Payback	47	655,400

I-B2 WATERSHED GRANT AGREEMENT

The Silicon Valley Manufacturing Group (SVMG) and the Silicon Valley Pollution Prevention Center (SVPPP), under the watershed grant agreement from the City, hired Ron Chairello of Stanford University to evaluate and discuss specific water reduction projects with some of the largest dischargers in the high-tech industry. Mr. Chairello has been working with HADCO of Santa Clara, MMC Technology, Intel, IBM, Hewlett Packard, and Tyco Technologies. These reviews and discussions have shown to be very effective. A final report will be prepared and an evaluation on the success of this study will be conducted by July 2000.

Future plans for this Grant include a workshop or roundtable conference to discuss the results of the Flow Audit Studies and the study being conducted by Mr. Chairello.

I-B3 INDUSTRIAL DISCHARGERS

The City is continuously working with industrial dischargers to reduce flows to the sewer system by offering financial incentives and technical support. As shown in Figure 2, the 1999 average discharge from industry was 11.56 mgd - which was up from the 1998 discharge of 11.29 mgd. This increase is attributable to new facilities ramping up production and including flows from all facilities that closed during

1999. The industrial flow at the end of 1999 after removing all the facilities that closed during the year is 10.57 mgd.

I-B4 INDUSTRIAL WATER REUSE GUIDELINES

The City is working on developing Industrial Water Reuse Guidelines to standardize water reuse requirements and assist other City Departments in their permitting procedures. This process is taking longer than expected due to the level of detail needed in putting together such a report. A final copy of these guidelines will be included in the July 2000 *Clean Bay Strategy* Report.

Next Steps

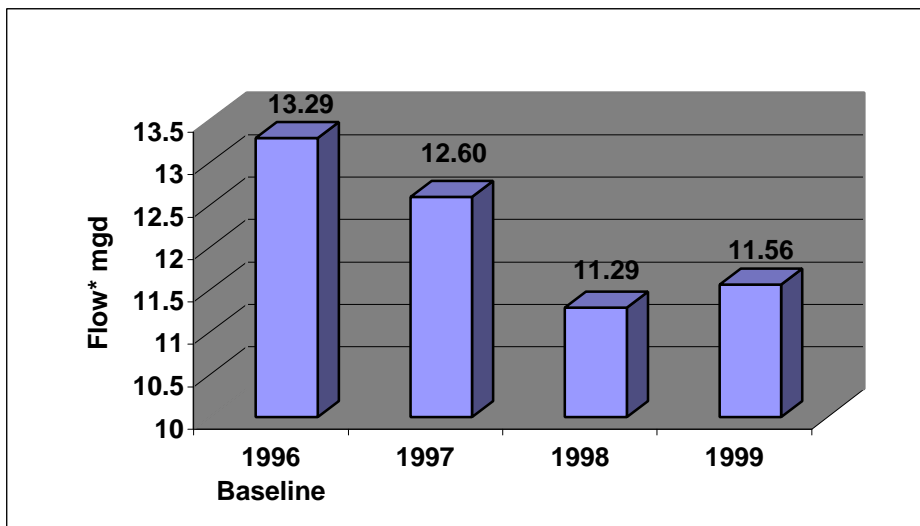
The review of the Audits will be completed and the final summary report will be included in the July 2000 *Clean Bay Strategy* Report.

The City is evaluating 1998 and 1999 industrial discharge data to identify new facilities that may be included in this program. All new or expanding facilities that are expecting to discharge over 100,000 gpd will be added to this program upon issuance of an industrial discharge permit.

The recycling guidelines will be completed and included in the July 2000 *Clean Bay Strategy* Report.

The City will continue to investigate cooperative efforts with individual industries as well as industrial groups.

Figure 2 : Average Flow from Industrial Dischargers



*Flows adjusted based on detailed analysis of the Pretreatment Database

I-C INDOOR WATER CONSERVATION

The Indoor Water Conservation element of the Revised Action Plan has a goal of achieving a total flow reduction of 5-8 mgd over a five-year period beginning with FY 97/98, with an annual flow reduction goal of not less than 1 mgd.

Indoor water conservation programs focus most heavily on residential customers (as they contribute 70% of Plant flows). In turn, the specific emphasis of residential programs is the installation of Ultra Low Flush Toilets (ULFTs) as the single most effective residential water conservation measure. Program incentives include rebates, vouchers, and full-service installation, depending on the program element and community sector targeted.

In FY 98/99, the City undertook a study of the water use patterns and characteristics among San Jose's single-family and multi-family residences. The study helps distinguish the profiles of those with and without water conservation fixtures. Among the findings is that - not surprisingly - more water is used indoors than outdoors for both single-family and multi-family dwellings. Leaks were detected in 95% of participating households and many of these leaks were found to originate with leaking toilet flapper valves. The study also noted that market penetration of ULFTs is approximately 36%, revealing both the success of past efforts and potential for additional savings. The results of this study will facilitate the development of water efficiency programs and estimations of water savings and cost effectiveness.

In the business sector, the program's efforts include ULFT retrofits and the more flexible Financial Incentive Program (FIP). FIP offers rebates for equipment and process changes that reduce a company's effluent to the Plant.

In addition, the City develops and implements public outreach campaigns emphasizing water conservation as it relates to the flow issue. These campaigns are discussed in Section V-A2.

I-C1 ULTRA-LOW FLUSH TOILET (ULFT) REBATE PROGRAM

Serving primarily single-family residences by providing rebates of up to \$75 per ULFT, the Rebate Program has been offered by the Water District and administered through local water companies since 1992. The Plant has provided marketing support for the program throughout the Plant service area. In 1999, the Water District elected to bring the Rebate Program to a close and plans to instead offer more sector-targeted programs beginning in FY 2000/2001. The City will likely support those newer elements with staffing assistance, outreach, and funding.

To mark the close of this program, the City and Water District implemented a major campaign to promote its sunset and an accompanying additional \$25 limited-time incentive offered from August through October 1999. The campaign and final program offer proved to be highly successful. The goal for the limited-time offer was 10,000 rebates. Preliminary data from retailers suggest that more than 16,000 rebates will have been processed.

Table 4
ULFT Rebate Program Status

	FY 1999/2000 Goal	FY 1999/2000 to Date	Program Total 1992 to Date
# ULFTs	10,000	16,248	105,289
Flow Reduction, gpd	300,000	618,140	4,095,432

I-C2 COMMUNITY PARTNERSHIP PROGRAM (CPP)

Designed to provide ULFTs and free installation to hard-to-reach communities in San Jose, this program was planned for expansion to include the rest of the Plant service area this fiscal year. Recent challenges in procuring a contractor for this program and the Water District's interest in implementing a countywide CPP element in FY 00/01 have led the City to defer this program element this year in favor of exploring other potential programs. ULFT options include hardware distribution programs, which have proved very successful in other areas. Additional program alternatives include Mobile Home Park sub-metering and incentives for hot-water-on-demand systems.

Table 5
Community Partnership Program Status

	FY 1999/2000 Goal	FY 1999/2000 to Date	Program Total 1996 to 1999
# ULFTs	--	44	39,951
Flow Reduction, gpd	--	1,320	1,500,715

I-C3 MULTI-FAMILY DWELLING (MFD) VOUCHER PROGRAM

Designed to provide “pre-bates” of \$75 per ULFT and free toilet recycling services to apartment owners and managers, this program took a hiatus during the ULFT Rebate Program’s limited time offer from August through October 1999. The purpose was to minimize any confusion between that offer and the Voucher Program.

With the final Rebate Program offer complete, the Voucher Program has just begun aggressive marketing for a final Voucher offer that will begin January 1, 2000 and end March 30, 2000. This final installment provides an additional \$25 rebate to the original \$75 “pre-bate” for a total of up to \$100 per ULFT.

While a future program element is being developed for smaller complexes (<21 units), the focus of this limited time Voucher offer is medium to large complexes (>21 units).

Table 6
MFD Voucher Program Status

	FY 1999/2000 Goal	FY 1999/2000 to Date	Program Total 1997 to Date
# ULFTs	5,000	2	20,005
Flow Reduction, gpd	275,000	140	1,124,980

I-C4 COMMERCIAL, INDUSTRIAL, AND INSTITUTIONAL (CII) ULFT PROGRAM

Activities for the CII Program include the City Facilities Program as well as the CII Voucher Program. The City Facilities Program retrofits selected municipal facilities with ULFTs. During this reporting period, 131 ULFTs were installed within San Jose city facilities. The City is exploring how to implement similar programs in the other municipalities in the Plant service area.

The CII Voucher Program offers from \$100-\$150 per ULFT for businesses switching to ULFTs. During this reporting period, 369 ULFTs were installed through the Voucher Program. Changes were

made following the end of its first year of implementation that included adjusting voucher amounts to differentiate between gravity-flow toilets (up to a maximum of \$100 per ULFT) and the more commonly used flush-o-meters (up to a maximum of \$150 per ULFT).

Efforts are being coordinated between the City and the Water District to target high flow-savings sectors such as restaurants, wholesale facilities, and other establishments with high occupant/restroom ratios.

Table 7
CII ULFT Program Status

	FY 1999/2000 Goal	FY 1999/2000 to Date	Program Total 1997 to Date
# ULFTs	900	500	3,149
Flow Reduction, gpd	43,200	24,000	151,152

I-C5 FINANCIAL INCENTIVES PROGRAM (FIP)

Rebates of up to \$50,000 per project are provided to businesses that implement equipment and process changes that reduce the discharge of wastewater to the sanitary sewer. Rebate amounts are based on the amount of flow reduction garnered from a project, at a rate of \$4 per ccf/year of flow savings. The program's largest focus continues to be the Flow Audit Study participants, whose submissions are currently being reviewed (see Section I-B). Continued activities will include using FIP to encourage implementation of measures identified through the Audits.

Past performance has shown that projects can take a year or more from application to project completion. It is also not uncommon for a company to alter a flow reduction project midway in order to meet changing needs. Program targets are based solely on resultant flow savings. Past program performance is also tracked by number of project applications completed. In addition to the completed projects summarized below, there are currently 20 active applications, with associated flow savings estimated at more than 0.68 mgd.

**Table 8
FIP Status**

	FY 1999/2000 Goal	FY 1999/2000 to Date	Program Total 1991 to Date
# Completed Applications	--	2	48
Flow Reduction, gpd	200,000	39,000	802,000

I-C6 ADDITIONAL CONSERVATION PROGRAMS

Additional programs aimed at reducing flows to the Plant include the horizontal axis washer rebate program and the residential water survey program

I-C6.1 HORIZONTAL AXIS WASHER REBATE PROGRAM

Beginning in 1998, the Plant began co-funding the District's participation in the Horizontal Axis Washer Rebate Program offered by PG&E. This program offers customers a rebate up to \$175 toward the purchase of water- and energy-efficient household appliances. Washing machines have been shown to be a high water-use appliance in the household, second only to the toilets. As a result of ongoing program success, the Plant will continue to co-fund these rebates with the District through FY 1999/2000.

**Table 9
Washer Rebate Program Status**

	FY 1999/2000 Goal	FY 1999/2000 to Date	Program Total 1998 to Date
# Washers	6,000	2,055	7,137
Flow Reduction, gpd	87,600	28,770	99,918

I-C6.2 RESIDENTIAL WATER SURVEYS

The City co-funds and the Water District performs residential water surveys in conjunction with water retailers. The surveys

consist of inventory and measurement of flow rates for all water-using fixtures and leaks, provision of low flow devices, and the promotion of ULFT replacement programs.

Table 10
Residential Water Survey Status

	FY 1999/2000 Goal	FY 1999/2000 to Date	Program Total 1999 to Date
# Surveys	5,800	779	779
Flow Reduction, gpd	103,820	13,944	13,944

I-D GROUNDWATER INFILTRATION (GWI) REDUCTION PROGRAM

As part of its flow reduction efforts, the City has investigated sources of groundwater infiltration. Since conventional methods of locating groundwater infiltration (GWI) during the previous years did not yield conclusive results, investigative efforts during the past six months were directed towards areas of potential GWI identified by the City's Department of Public Works.

Findings and Accomplishments

In November 1999, two areas with potential GWI were investigated:

1. Approximately 80 manholes suspected of GWI in the Almaden Valley area along the Almaden Expressway, parallel to the Alamos Creek area and south of Blossom Hill, were inspected for GWI. Approximately 2.1 mgd of GWI was visually estimated from these manholes.
2. Two manholes in the Santa Teresa-Bailey Road area were also inspected for GWI. The manhole at the intersection of Santa Teresa-Bailey Road was estimated to contribute significant GWI. Squirts of water with velocities ranging from 2-3 feet per second (fps) from several large holes and cracks in the barrel of the manholes were observed. Actual GWI into the manholes was not measured. GWI estimated from the other manhole was about 0.05 mgd.

In July 1999, dry weather GWI studies were conducted for the Milpitas sewer system. It was determined that the primary source of GWI in the system was from residential laterals. Rehabilitation cost was estimated at \$8.3 million per mgd of GWI reduction, and hence the project was determined to be cost

prohibitive. As a result Milpitas will not be executing any rehabilitation work to reduce dry weather GWI.

The West Valley Sanitation District has completed a dry-weather inflow and infiltration study. Preliminary reports indicate up to 6 mgd of groundwater inflow in the district's service area. Television inspections will be conducted, followed by an action plan for rehabilitation in 2001.

Next Steps

The sewer lines connecting the manholes in the Almaden Valley area are planned to be TV inspected during the coming dry season. Depending upon the results, the manholes and sewer lines will be rehabilitated or replaced.

The manholes at the Santa Teresa-Bailey Road area are being studied for rehabilitation by a consultant for the City of San Jose Department of Public Works. Construction work is expected to begin by summer 2000.

I-E MARSH MITIGATION

The purchase and the contribution towards the purchase of the Baumberg Tract, the Moseley Tract, and Bair Island, has made it possible for the City to fulfill its marsh mitigation requirement.

I-E1 BAUMBERG TRACT

A final update for this element was included in the July 1999 *Clean Bay Strategy* Report.

I-E2 MOSELEY TRACT

The City acquired the Moseley Tract from the Port of Oakland in September 1996. The Moseley family historically used this 54-acre site as a duck club. The City acquired consultant services for the restoration and management plan, as well as land surveying services. The topographic mapping was completed in December 1998, and the administrative draft of the restoration plan was completed in August 1999. The preliminary design calls for a passive tidal restoration that includes a breaching of the outward levee in two locations, and identifies facilities needed to accommodate Caltrans' continued use of the site as a stormwater collection basin for the Highway 84 right-of-way and flood control management. These facilities would significantly increase the restoration cost as well as compromise project objectives (e.g., stormwater retention basin in place of tidal wetlands). The time required

to resolve these critical project design issues has pushed the final design and permitting process into next year, with actual restoration work scheduled to begin in the summer of 2001.

I-E3 BAIR ISLAND

A final update for this element was included in the July 1999 *Clean Bay Strategy* Report.

II POLLUTANT REDUCTION

The Plant has met its pollutant effluent limits throughout the reporting period. There was a reduction of 174 pounds copper and 258 pounds nickel discharged to the South Bay from 1998 to 1999.

For the period between January and December 1999, the Plant's effluent concentration values for copper averaged 3.8 µg/l, ranging from 1.4 - 8.2 µg/l. Nickel averaged 6.3 µg/l, ranging from 4.0 - 11.0 µg/l.

Reduction of pollutants to the South Bay is accomplished through a multi-pronged continuous improvement approach involving infrastructure optimization, pretreatment programs, partnerships with industry, and special studies. The goal is to ensure that programs are efficient, cost-effective, and based on science. Regional cooperative programs, including the Urban Runoff Management Program and the Watershed Management Initiative, are also key elements in achieving this goal.

II-A SAN JOSE/SANTA CLARA WATER POLLUTION CONTROL PLANT

Optimization of in-Plant operations has helped the Plant meet its pollutant limits. In an effort to better characterize pollutants entering the Plant, the following studies were initiated:

- Develop an appropriate methodology to quantify flows and concentrations to the Plant from various sectors;
- Identify the presence and evaluate potential sources of organochlorine pesticides, PCBs, and dioxins in the Plant's influent;
- Trace pollutant sources and characterize sanitary sewer drainage basins; and
- Identify source control and pollution prevention opportunities.

II-A1 OPERATIONS AND MAINTENANCE (O&M) MANUAL

Updates to the O&M manual as specified in the November 30, 1998 letter to the Regional Board are in progress. The deadline for submittal of the completed manual is July 1, 2000. A consultant has been retained to complete the electronic version of the manual for improvement projects completed since the last update. Updates to the Contingency Plan and Reliability Report were submitted to the Regional Board on December 29, 1999, and January 14, 2000 respectively.

II-A2 HEADWORKS LOADING ANALYSIS STUDY

The objective of the Headworks Loading Analysis Study is to develop an appropriate methodology to quantify flows and concentrations from various sectors including residential, commercial, non-permitted industrial, institutional, and inflow and infiltration. Provided below is a brief description of study goals and the preliminary results.

Goal 1 - Quantify residential and commercial flow using potable water sales in the Plant service area for 1998.

The compilation of water use data will be completed in January 2000. An analysis of the data will be presented in the final report submitted in July 2000. Overall, potable water use in the service area trends very well with Plant influent flows.

An evaluation of methodologies for estimating wastewater discharges from various types of residential dwellings has been completed. Water use data is an accurate and appropriate methodology to estimate the annual average discharge from residential dwellings of various types or densities. Results showed that discharge from multiple family dwellings (MFD) is higher than previously estimated. Per unit the discharge from MFDs is very similar to discharge from single family dwellings. The accuracy of this methodology is limited by the classification system for residential dwellings. Residential dwellings are becoming more diverse in size and density and there is no description for dwelling types used commonly among local water providers.

The application of water use data to groups or classes of commercial businesses did not result in feasible methodologies to estimate wastewater discharge. The lack of a common denominator in the data, such as building density or occupancy, prevented commercial groups from being compared. It may be possible that such a methodology could be applied, but would require that some common information about each site be obtained and correlated with water use.

Goal 2 - Quantify industrial pollutant contribution.

An estimation of industrial contribution for copper and nickel to the Plant Headworks during 1998 has been completed. When loading estimates for the residential and commercial sectors are completed, a mass balance of the three discharge sectors with Headworks loading will be shown in the final report.

Goal 3 - Quantify inflow and infiltration using the ADS sanitary sewer flow monitoring system.

The availability of data to identify inflows into the sanitary sewer system was greatly enhanced with the installation of a sanitary sewer flow monitoring system. Challenges in contract execution with the pertinent vendor have caused delays in the acquisition of data. The City will work with the vendor or consider drawing on internal resources as needed to provide the data reports correlating sanitary sewer with inflow/infiltration.

Goal 4 - Develop a list of pollutants of concern for investigation.

In addition to investigating methodologies for estimating wastewater discharged to the sanitary sewer, the pollutants copper, nickel, mercury, organochlorine pesticides, and PCBs were selected for this study. These pollutants were selected based on their priority for investigation and the ability to complete the work within the set time frame. A task for the study of pollutants that limit recycled water use was removed from the workplan because of time and resource constraints.

Goal 5 - Design a monitoring program to identify and quantify sources of pollutants of concern.

The identification of mercury discharges to the sanitary sewer is a major focus of this study. The trunklines entering the Plant were sampled to determine if loading differed significantly. Monitoring of industrial sources, hospitals, residential areas, and dental offices was completed in November 1999. The results of monitoring potential sources of mercury are consistent with previous studies showing dental offices and the residential sector contributing the majority of mercury loading. As part of the Selected Organics Source Investigation (see section II-A3), hospitals were monitored as a potential source of organochlorine pesticides.

More details on the pollutant contribution for specific sources will be provided with the final program report.

Summary

The estimation of inflows to the sanitary sewer is still delayed and no data has been acquired for analysis. It is unknown when the data will be available. The estimation of wastewater discharges from the residential and commercial sectors was delayed several months, but is now completed. All other study tasks have been completed. Table 11 summarizes the status of each task of the Headworks Loading Analysis Study.

Next Steps

An analysis and summary of pollutant loading and flow methodology will be detailed in the final report in July 2000.

Table 11 : Headworks Loading Analysis Program

GOAL	TASK	DUE DATE	STATUS
1. Quantify residential and commercial flow using potable water sales in the WPCP service area for 1998	• Obtain waters use records	4/99	Completed
	• Estimate sector flows	9/99	In progress
2. Quantify industrial pollutant contribution	• Calculate industrial flow and pollutant concentrations using Source Control database	6/99	Completed
3. Quantify inflow and infiltration using ADS sanitary sewer flow monitoring system	• Review monthly flow reports		Behind Schedule
	• Identify collection system inflows	9/00	
	• Identify collection system infiltration	12/00	
4. Develop a list of pollutants of concern for investigation	• List of toxic pollutants for study	3/99	Completed
	• List of pollutants that limit recycled water use	4/99	Deleted
5. Design a monitoring program to identify and quantify sources of pollutants of concern	• Evaluate existing Plant data to determine pollutant fate and calculate removal rates for pollutants of concern	3/99	Completed
	• Conduct literature search to identify known or established sources of pollutants of concern	6/99	Completed
	• Develop sampling protocol for pollutants to be monitored	7/99	Completed
	• Develop monitoring program to identify and characterize pollutants of concern	7/99	Completed
	• Conduct monitoring	7/99 – 7/00	Ongoing
6. Compile study report	Submit study report to the Regional Board	7/00	

II-A3 SELECTED ORGANICS SOURCE INVESTIGATION

The five investigation goals of identifying the presence of organochlorine pesticides, PCBs, and dioxins in the Plant's influent, evaluating potential sources, and identifying source control and pollution prevention opportunities are nearly complete. Table 12 shows the status of each element. Provided below is a brief description of study goals and the results. This investigation is being coordinated with the Special Effluent Study (see III-A).

Goal 1 - Identify the presence and quantities of organochlorine pesticides, PCBs, and dioxins in the Plant influent.

Plant influent, effluent, and biosolids are monitored at least semi-annually for organochlorine pesticides and PCBs using EPA Method 608. A review of the data collected from 1993 through 1998 showed that some organochlorine pesticides were detected. Of the 12 samples collected at each monitoring point over six years, two influent samples, four effluent samples, and three biosolids samples detected organochlorine pesticides. Most concentrations were at, or slightly above, the detection limit. A few results showed concentrations at 6 to 8 times the detection limit 0.004 µg/l.

Gamma-BHC, commonly known as Lindane, was found in all 4 effluent samples that tested positive for organochlorine pesticides. Lindane was not detected in the corresponding influent samples or in the other 3 samples collected. The only organochlorine pesticides detected in the biosolids were 4,4'-DDD and 4,4'-DDE. Aldrin and 4,4'-DDD were detected in the influent at concentrations 6 to 8 times the detection limit. Organochlorine pesticides or PCBs were not detected in any of the samples taken at each monitoring point since 1996.

In 1999, weekly influent monitoring using EPA Method 608 was conducted for twelve weeks. All sample results were negative for organochlorine pesticides and PCBs.

Because of the high cost of laboratory analysis for dioxin compounds, investigation of dioxin sources was limited to the review of permitted dischargers.

Goal 2 - Determine whether permitted Industrial Users discharge any organochlorine pesticides, PCBs, and dioxins to the Plant.

The records of 230 permitted Industrial Users that discharge more than 1,000 gpd were reviewed for the use, generation, or storage of priority pollutants including organochlorine pesticides, PCBs, and dioxins. Of

those facilities, 4 reported the presence of organochlorine pesticides or PCBs. Two dischargers reported the presence of PCBs associated with electrical transformers. A centralized waste treatment and disposal facility reported the storage of organochlorine pesticides, and a research facility reported having hexachlorobenzene.

Inspections of these 4 facilities were conducted to determine the potential for the reported compounds to enter the sanitary sewer. The source of PCBs reported by one discharger was from contaminated soil. The discharger has since completed site remediation for soil contamination. PCBs reported by another discharger were due to transformers on site. The discharger is in the process of replacing a light fixture ballast. The centralized waste treatment and disposal facility had organochlorine pesticides on-site that were repackaged for offsite disposal. The repackaging operations were not associated with any discharges to the sanitary sewer. The remaining research facility that reported the presence of hexachlorobenzene has removed this chemical from their inventory.

Goal 3 - Identify potential sources of organochlorine pesticides and PCBs that are noted or suspected in Plant influent.

The most recent Plant influent sample to have detectable quantities of organochlorine pesticides was discovered in March 1996. Lindane was found in this sample and has been present in earlier samples. Lindane was the last of the organochlorine pesticide compounds to be registered for use in California, but is no longer approved. Lindane was approved for use in the control of agricultural pests, flea and tick treatment of domestic animals, and human head lice.

To determine if Lindane was still used in products for controlling fleas and ticks in pets a survey of local retail stores and professional veterinarian facilities was conducted. The survey results showed that Lindane was not used in any publicly available or professionally used products.

Goal 4 - Confirm sources of organochlorine pesticides and PCBs.

The investigation identified only two potential sources of Lindane discharges to the sanitary sewer, veterinarian care and hospitals. Monitoring of discharges from several local hospitals was conducted to identify if any organochlorine pesticide compounds were present. Samples taken from five hospitals did not detect any organochlorine pesticides. No suitable locations to monitor the discharges from veterinarian care facilities could be found.

Goal 5 - Identify opportunities for source control and pollution prevention.

The investigation was unable to detect the presence of organochlorine pesticides in the Plant influent. Potential sources of organochlorine pesticides could not be identified. At this time, the investigation was unable to identify opportunities for source control and pollution prevention.

Monitoring of the Plant influent has not detected the presence of organochlorine pesticides since 1996. Monitoring data from 1993 to date did not detect the presence of PCBs in the influent. Los Angeles County Sanitation District conducted a study to identify the source of Lindane found in their sewers and found that 99% of the Lindane loading was from head lice/scabies treatment. Any organochlorine pesticides or PCBs that might be detected in the Plant influent would more than likely be from past usage.

Next Steps

A summary report for the program will be submitted in July 2000.

Table 12 : Selected Organics Source Investigation

GOAL	TASK	DUE DATE	STATUS
1. Identify the presence and quantities of organochlorine pesticides, PCBs, and dioxins in plant influent	• Review monitoring results of plant influent and effluent monitoring of organochlorine pesticides and PCBs	3/99	Completed
	• Monitor plant influent weekly for 12 weeks to confirm presence of organochlorine pesticides and PCBs	6/99	Completed
	• Incorporate data obtained from Special Effluent Study for Certain Organic Pollutants	As data becomes available	Awaiting Results
2. Determine whether permitted industrial Dischargers discharge any organochlorine pesticides, PCBs, and dioxins	• Review Dischargers files and records for the storage, use, or generation of organochlorine pesticides, PCBs, and dioxins	6/99	Completed
3. Identify potential sources of organochlorine pesticides and PCBs that are noted or suspected in plant influent	• Survey uses and applications of organochlorine pesticides and PCBs and create a list of potential sources within the plant's service area	6/99	Completed
4. Confirm sources of organochlorine pesticides and PCBs	• Develop monitoring program to confirm potential sources are discharging organochlorine pesticides and PCBs	7/99	See Text
	• Conduct monitoring	7/99– 2/00	
5. Identify opportunities for source control and pollution prevention	• Develop control mechanisms to reduce the amount of organochlorine pesticides and PCBs discharged to the sanitary sewer system	6/00	See Text
6. Compile study report	• Submit study report	7/00	

II-A4 TRUNKLINE AND UPSTREAM MONITORING PROGRAM

The City has implemented the Trunkline and Upstream Monitoring Program over the past four years, tracing pollutant sources and characterizing sanitary sewer drainage basins. In addition, surveillance monitoring of Industrial Users was conducted in areas exhibiting high pollutant loads. This two-pronged approach was very successful in meeting the program objectives.

Findings and Accomplishments

During 1995, the average copper and nickel loading to the Plant Headworks was twice the estimated loading from the commercial, residential, and industrial sectors combined. Initial monitoring found high copper and nickel loads were coming from areas with industrial activity. Surveillance monitoring within these areas confirmed that permitted IUs were contributing greater copper and nickel loads than those estimated from routine pretreatment compliance and industrial self-monitoring data. This excess copper and nickel loading to the Plant was mainly a result of pollutant “spikes” or extreme concentrations discharged to the collection system. The average copper and nickel loading to Headworks decreased during 1996, reducing the “unknown” loading to one-quarter of the total.

The ability to trace an unknown pollutant source was tested, and demonstrated, when the Plant experienced an effluent violation for nickel in July 1996. Following months of effort, the source was isolated to a three-square block area. The discharges discontinued before the source was positively identified.

Overall, total copper and nickel loading progressively decreased during the first three years of monitoring. Loading for total copper has rebounded during 1999, returning to 1997 values.

Mass Loading

The average Plant influent flows for previous reports (1997 through 1999) were revised to provide consistency and improve the pollutant loading comparison. Influent flows were revised by using potable water deliveries to the seven purveyors within the Plant service area as a base line for revising the previous flow readings. The adjustments made were less than 10% of the total flow and account for a minor difference in pollutant loading from previous reports. Figures 1 through 4 show the average daily mass loading for the five trunklines entering the Plant during the past four years.

Figure 1 shows the average daily loading of total copper at each of the trunklines. Total copper loading has increased 11% from the previous period, primarily at T-2. Current loading is consistent with the loading from June 1996 through May 1998.

Figure 2 shows the average daily loading of dissolved copper at each of the trunklines. Current dissolved copper loading at the trunklines has increased 15% from the previous period, primarily at T-1. Over the past year loading is 50% greater than that was seen during 1997 through 1998.

Figure 3 shows the average daily loading of total nickel at each of the trunklines. Current total nickel loading at the trunklines increased 23% from the previous period. Increases occurred at T-1 and T-2, and decreased or remained the same at the other trunklines.

Figure 4 shows the average daily loading of dissolved nickel at each of the trunklines. The trend for dissolved nickel is similar to total nickel. Current increases are seen at T-1 and T-2 resulting in 33% greater loading overall.

Summary

Copper and nickel loading at the five trunklines has increased during the past six months. Except for dissolved nickel, the current loading is consistent with loading prior to 1998.

Next Steps

To address recent increase in the copper loading, the program will increase upstream monitoring on the T-1 trunkline and will provide additional monitoring of industrial users discharging to the T-2 trunkline.

The Trunkline and Upstream Monitoring Program will continue to monitor the trunkline and upstream sites as needed to identify sources of extreme pollutant concentrations entering the Plant. Program data will be used to support surveillance, inspection, enforcement, and outreach efforts.

Figure 3 : Total Copper Loading by Trunkline

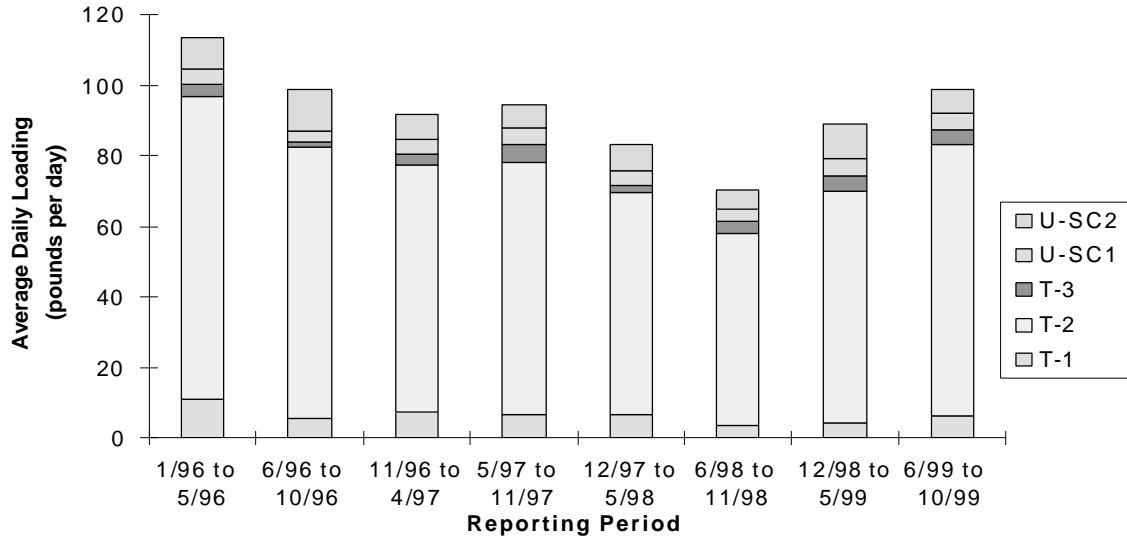


Figure 4 : Dissolved Copper Loading by Trunkline

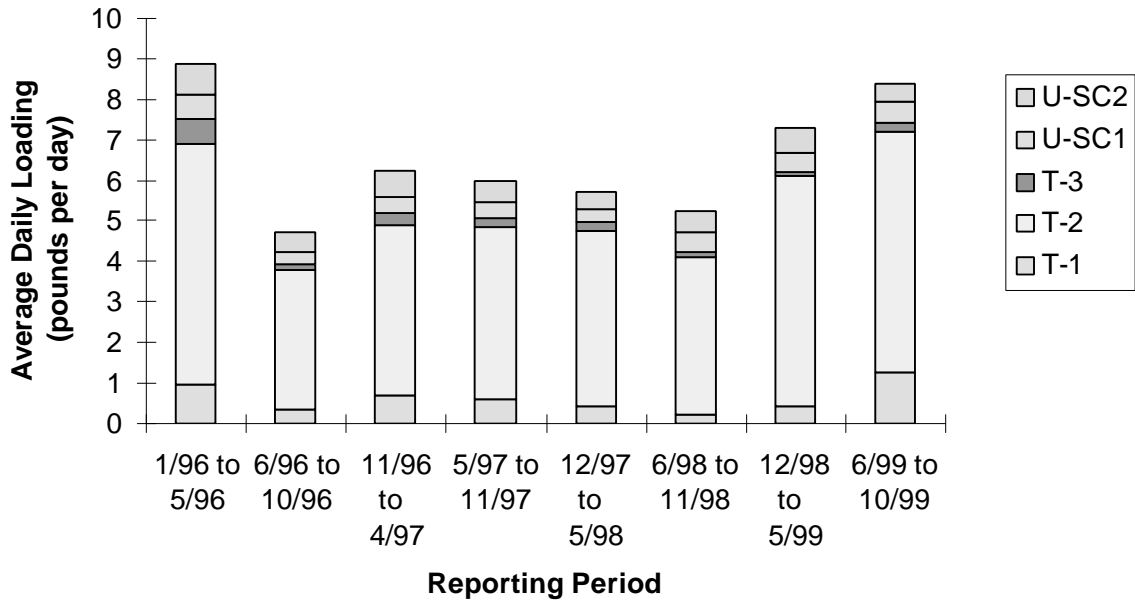


Figure 5 : Total Nickel Loading by Trunkline

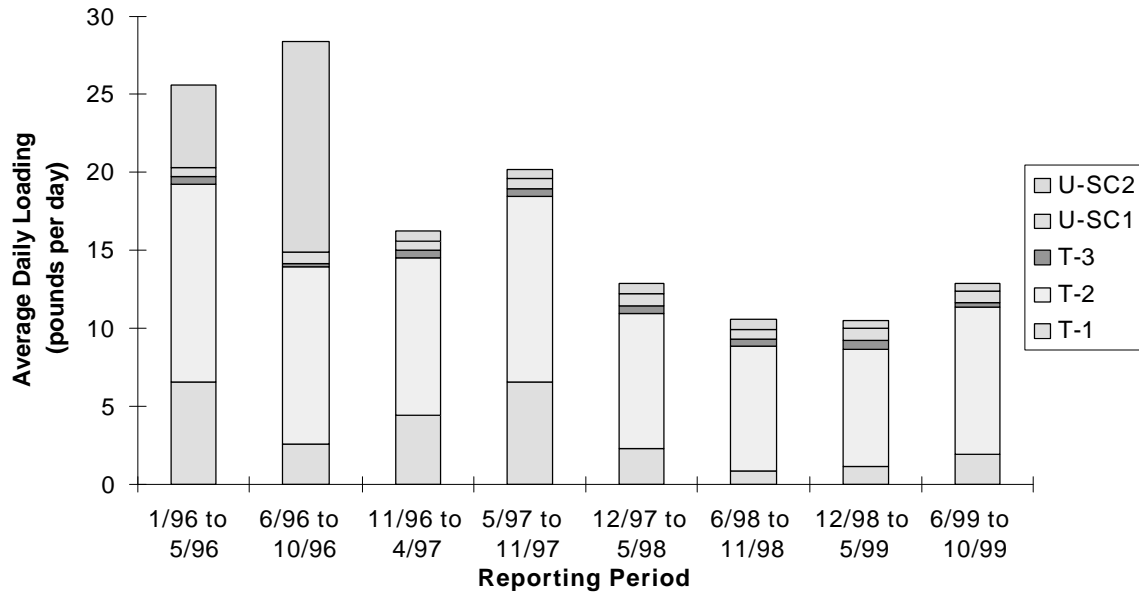
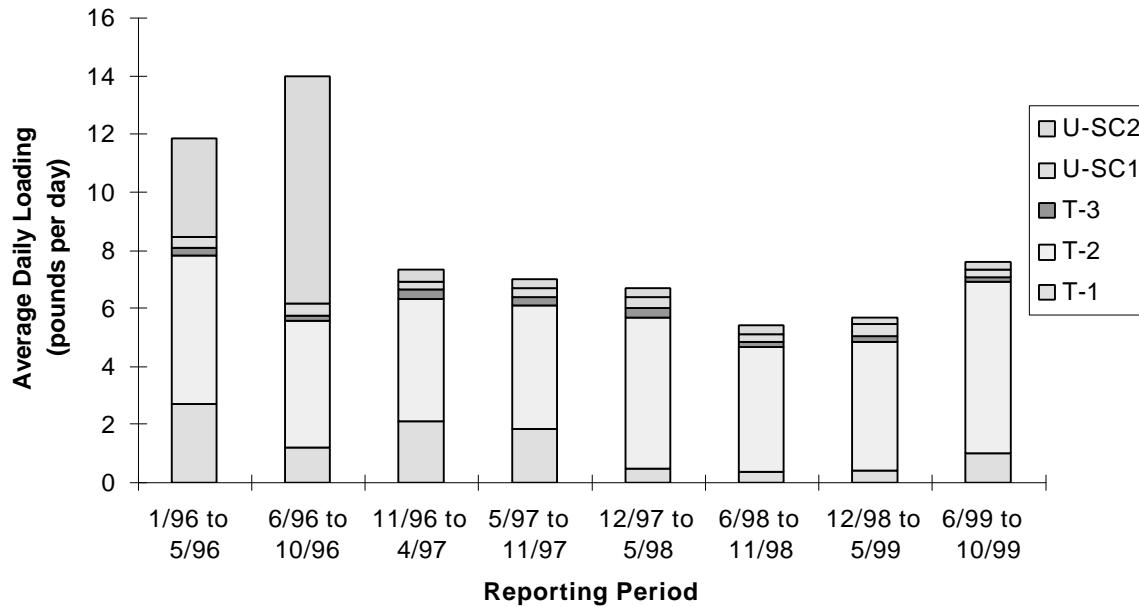


Figure 6 : Dissolved Nickel Loading by Trunkline



II-A5 IN-PLANT STUDIES

Nitrification has been converted into a single stage Biological Nutrient Removal (BNR) process. As a result, Secondary and Nitrification processes are now operated in parallel. Construction of a new effluent monitoring station for the BNR process has begun. The monitoring station includes new automatic samplers, along with on-line turbidity, ammonia and nitrite meters. The system for Automatic Sludge Retention Time control of BNR in Nitrification is currently in operation.

Completion of the design of the filtration backwash water chlorination project has been delayed due to technical issues, and is now scheduled for completion in the spring of 2000. Construction is scheduled to begin in the fall of 2000. After conversion of the biological treatment process to a parallel BNR process, it was discovered that relocation of the existing ammonia dosage point (ammonia is used for chloramination) ahead of the filters to a post-filtration location needs to be completed prior to attempts to terminate pre-filter chlorination. Relocation of the ammonia dosage point is currently under design, with construction planned for the fall of 2000.

The Plant is still planning to conduct a fecal coliform study in the receiving water, with an anticipated start date of May 1, 2000 (pending approval of the work plan from the Regional Board).

II-B THE PRETREATMENT PROGRAM

The New Industry Development program continues to provide significant input into the City's development review process. Partnerships with industry have engaged dischargers in evaluating innovative pollutant reduction techniques.

II-B1 INDUSTRIAL WASTEWATER DISCHARGE MUNICIPAL CODE

The Sunol and Burbank Sanitary Districts have amended their municipal codes to adopt the change in the definition of Critical User. They were the final two tributary agencies (to the Plant) to complete the amendment. The change in the definition gives authority to the pretreatment program to require Flow Audit Studies from any discharger whose flow to the sanitary sewer exceeds 100,000 gpd.

II-B2 NEW INDUSTRY/DEVELOPMENT PROGRAM

The New Industries Development Team (NIDT), consisting of representatives from all of ESD's divisions, continues to comment on new development projects in San Jose during the planning review process. The purpose of the review is to identify and address wastewater discharge quality and flow issues that may affect ESD. Indoor and outdoor water efficiency, recycled water use, and pollutant load minimization are some of the criteria used to evaluate a new industry and development project.

As part of their 30-day letter, developers now receive a comprehensive, early notification of the City's water-use code requirements and regulations to reduce wastewater flows and increase recycled water use and incentive-based environmental programs.

Findings and Accomplishments

For this reporting period, NIDT reviewed and responded to the following:

- 6 Administrative Draft Environmental Impact Reports (EIRs), 3 Draft EIRs, and 1 Supplemental EIR;
- 1 Application for Certification, submitted by the Metcalf Energy Center to the California Energy Commission, requesting authorization for construction of a power plant in South San Jose;
- 1 Application for Certification, submitted by PG&E to the California Public Utilities Commission, requesting authorization for construction of the Northeast San Jose Transmission Reinforcement project;
- 30 Projects identified for potential adoption of water conservation or other flow reduction measures;
- 52 Projects identified for potential industrial pollutant and/or wastewater reduction measures; and
- 53 Projects identified for potential use of recycled water.

Next Steps

NIDT will evaluate the need for and feasibility of producing brochures for developers to encourage water and energy efficiency. In coordination with ESD's Water Efficiency Program, NIDT will identify and evaluate additional residential water conservation measures such as horizontal axis washing machines and hot water recirculation systems.

II-B3 INDUSTRIAL DISCHARGER RESEARCH STUDIES

The Printed Circuit Board (PCB) partners have completed their commitment to the PCB partnership with the City. These partners include:

1. HADCO, Santa Clara;
2. Tyco Printed Circuit Group, Inc. – Santa Clara Division;
3. Paragon Electronics System, Inc.; and
4. South Bay Circuits.

The PCB research study was a two-year effort to reduce the amount of pollutants and flow from these facilities to the sanitary sewer and to establish relationships between the partners to achieve common goals. They have been successful in achieving those goals despite significant changes during the second year of the partnership.

Findings and Accomplishments

In the second year of the partnership, Tyco Printed Circuit Group purchased Sigma Circuits. The new owners continued to support the staff's commitment to this effort. Paragon Electronics and South Bay Circuits had very limited involvement during the second year due to staffing reductions and other work priorities. Despite these changes, progress was made. HADCO completed a flow audit study and Tyco will submit one in January 2000.

The partnership has accomplished the following:

- Established copper, nickel, and lead baseline information for each company;
- Developed costs and performance levels for copper and nickel removal;
- Came to an agreement on standard units of measurement to facilitate data comparison between companies;
- Evaluated the use of SBWR water at Paragon, HADCO and Tyco;
- Exchanged information on feasible flow reduction measures; and
- Discussed water quality needs for PCB processes.

Some companies applied and were approved for the City's FIP funds that are used to defer costs for water reduction projects. In addition, the companies participated in the City's *Slow the Flow* campaign and invited City representatives to speak directly to process engineers regarding the need for water reduction and reuse programs.

Summary

The companies agreed that over the course of the partnership the exchange of information was useful. Comparing the different treatment technologies revealed the similar treatment efficiencies for the removal of copper, a primary pollutant in the PCB industry. The companies also learned that the treatment efficiencies for lead and nickel varied greatly among the different treatment systems. A consensus was reached that more information and analysis should be devoted to nickel, since many PCB manufacturers are investigating lead-free alternatives in the process.

Next Steps

The companies felt that any future studies might reap the largest waste reductions by looking into water flow and rinse water optimization. This might be achieved by studying individual engineering practices within water intensive processes and by auditing specific processes for comparison.

Even though the group will not be meeting together as it has over the past two years, work will continue at these companies to complete some of the investigations that are currently underway as a result of the partnership. The City will continue to follow their progress individually and share information, as it becomes available.

A complete summary report of the results of this two-year partnership effort will be included in the July 2000 *Clean Bay Strategy* update.

II-B4 INDUSTRIAL POLLUTANT LOADING STATUS

The IU database that is used to calculate the permitted industrial loading and flow has been upgraded to be Y2K compliant. Until the system is automated, loading information will need to be continually verified and if necessary, corrected.

Table 13 and Figures 7 - 10 show the 1997 (baseline), 1998, and 1999 flow and loading to the Plant from permitted industrial dischargers. Industrial copper loading is close to the 1997 baseline level. There are increases in both the Group 1 and Group 3 sectors. Group 1 flows have also increased over 1998 levels but are still below the 1997 baseline. Total nickel loading is below both the 1998 loading and the 1997 baseline levels despite the small increase in loading from Group 1 dischargers.

Some of the increased copper loading could be attributed to several dischargers who have been discharging in excess of local discharge

limits. Enforcement action is being taken on all of these dischargers and monitoring will continue in accordance with the Pretreatment Program's Enforcement Response Plan. Also, upstream monitoring will continue to further identify any additional sources or exceedances of copper and/or nickel.

We are also seeing continued increases in manufacturing activity in both new and existing facilities, which adds to the Plant's flows, as well as to the potential copper or nickel loading. The programs identified throughout the *Clean Bay Strategy* program continue to emphasize flow and metals reductions and efficiencies.

Table 13 : Industrial Flow, Copper, and Nickel Loading

DISCHARGER	FLOW mgd			Cu Pounds per day			Ni Pounds per day		
	1997	1998	1999	1997	1998	1999	1997	1998	1999
Group 1	2.76	2.29	2.53	5.24	4.27	6.48	2.51	1.47	1.63
Group 2	9.81	8.97	8.99	3.52	3.51	2.10	3.82	3.48	3.20
Group 3	0.03	0.03	0.04	0.03	0.02	0.03	0.03	0.01	0.02
Total	12.60	11.29	11.56	8.79	7.80	8.61	6.36	4.96	4.85

Figure 7 : Industrial User Copper Loading

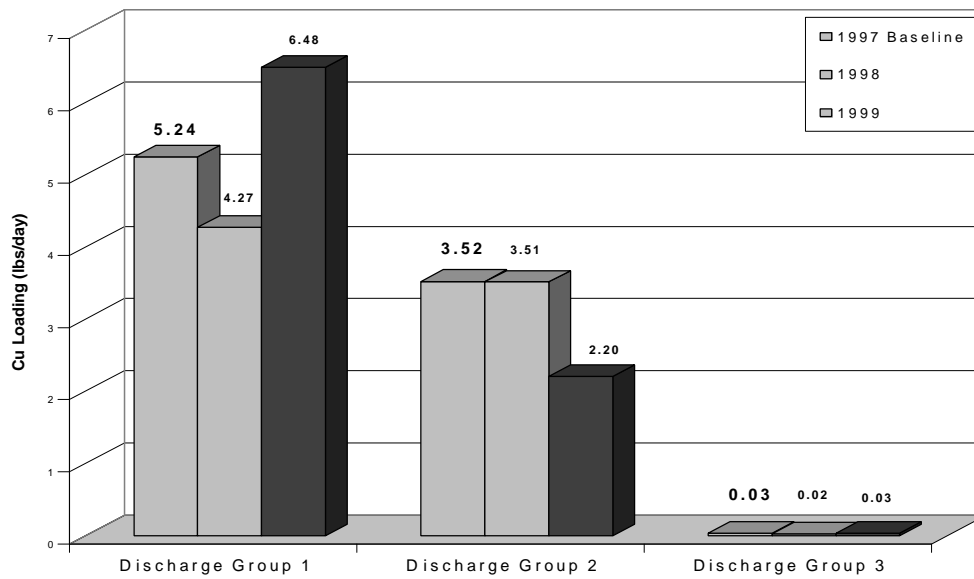


Figure 8 : Industrial User Nickel Loading

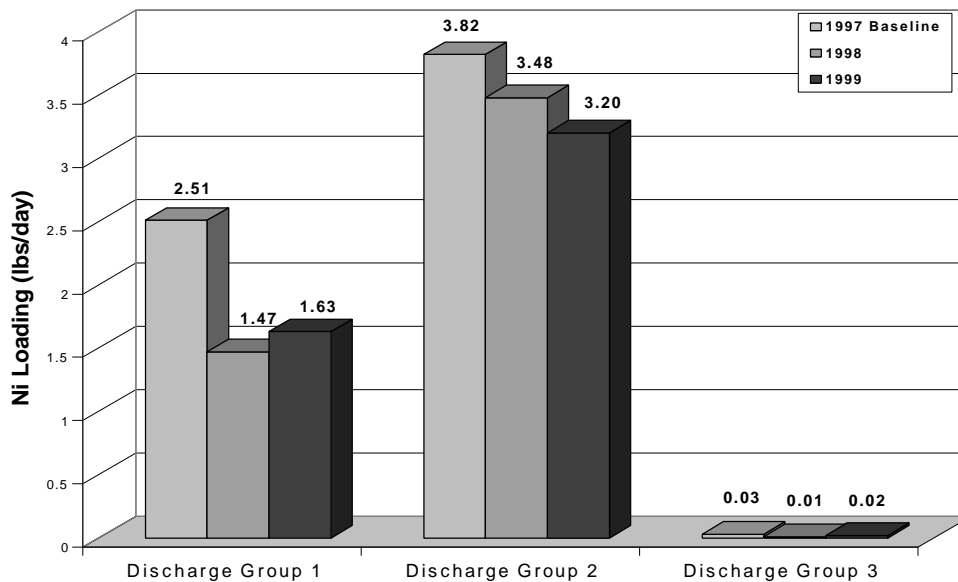


Figure 9 : Industrial User Total Copper & Nickel Loading

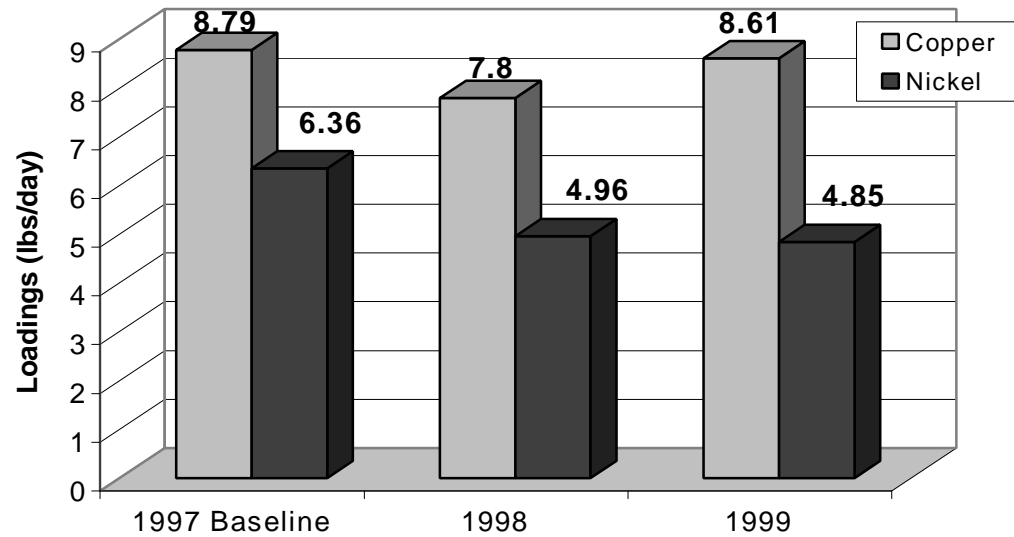
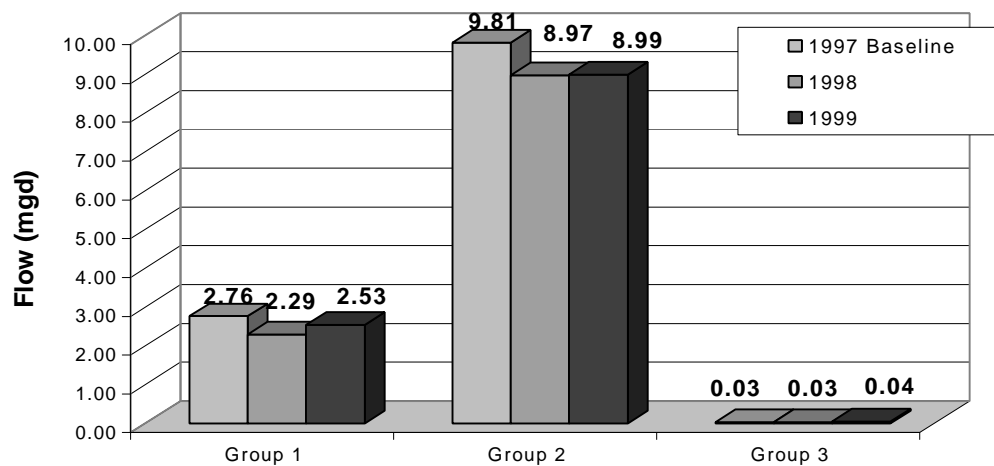


Figure 10 : Permitted Industrial Flow



III RESEARCH AND SPECIAL STUDIES

With a goal to develop information that will support scientifically based forthcoming regulatory decisions, the City has been involved in the following local and regional research studies:

1. Low level monitoring with ultra clean procedures and techniques as part of a special effluent study on select organic priority pollutants;
2. Participation in the Mercury Total Maximum Daily Loads (TMDL) process;
3. Monthly monitoring of water quality parameters in the South Bay to better understand beneficial use;
4. TMDL efforts for copper and nickel;
5. Monitoring of marsh conversion; and
6. Developing pilot projects using recycled water to create wetlands and the release of recycled water into Coyote Creek.

Each study is described in greater detail below.

III-A SPECIAL EFFLUENT STUDY FOR CERTAIN ORGANIC POLLUTANTS

A study plan jointly developed by the three South Bay dischargers (Palo Alto, San Jose/Santa Clara, and Sunnyvale) to conduct low level effluent monitoring using ultra-clean procedures and techniques on select organic priority pollutants was approved by the Regional Board in March 1999.

Findings and Accomplishments

The first two effluent samples for the City were collected in November 1999. Effluent samples from Palo Alto, Fairfield-Suisun Sewer District, and Sunnyvale were also acquired in November 1999. The University of Utah and AXYS Environmental Systems (a company specializing in large volume organic extractions and analysis) collected the wastewater samples, while the University of Utah exclusively performed all extractions. After extraction, sample splits were sent to AXYS and the Geochemical and Environmental Research Group (GERG) at Texas A&M University for analysis.

Next Steps

The samples will be analyzed for Polyaromatic Hydrocarbons (PAHs), Polychlorinated Biphenyls (PCBs), and pesticides. AXYS will be performing the dioxin analysis. Data will be available in the early part of 2000.

III-B MERCURY TMDL PARTICIPATION PLAN

In November 1998, the City submitted to the Regional Board a Mercury Participation Plan that included the following objectives:

- Continue low level effluent monitoring of the Plant effluent for mercury; and
- Participate in the Regional Board's region-wide mercury phased TMDL investigation.

The City advocated participation in the Regional Board's South Bay mercury program in coordination with the Santa Clara Basin Watershed Management Initiative. The City also agreed to provide adequate resources for its participation in the development of a region-wide mercury strategy and any resulting phased TMDL studies, as appropriate. On January 13, 1999 the Regional Board accepted the City's commitment to participate in the Mercury TMDL process.

Findings and Accomplishments

Effluent monitoring for July through December 1999 averaged 3 parts per trillion (ppt) total mercury, which is well below the Plant's NPDES permit limit of 12 ppt. The City continues to maintain direct participation in the Regional Board's Mercury Council through the Bay Area Dischargers Authority (BADA) Laboratory Committee and the Santa Clara Valley Urban Runoff Pollution Prevention Program. In addition, City staff is participating in the Watershed Assessment Subgroup of the Santa Clara Basin Watershed Management Initiative (WMI), which serves as the stakeholder forum for the Guadalupe Watershed mercury TMDL effort. This group is currently in the process of developing a TMDL workplan and evaluating resource requirements.

In addition, the City has committed significant resources toward the Regional Monitoring Program's Atmospheric Deposition Pilot Study. This commitment has enabled the San Francisco Estuary Project/San Francisco Estuary Institute to receive seed funding from the US EPA under the National Atmospheric Deposition Program (NADP) – Mercury Deposition Network. Accomplishments to date include deployment of instruments and collection of samples for Direct Dry Deposition and Wet Deposition at all three Pilot sites (South Bay, Treasure Island, and Martinez). Design of the Pilot Study has been peer reviewed and limited preliminary results of the Direct Dry Deposition were presented at the annual NADP Technical Committee Meeting in Sacramento in October 1999.

Next Steps

Preliminary results from the Atmospheric Deposition Pilot Study will be included in the upcoming 1998 Regional Monitoring Program Annual Report.

III-C SPECIAL WATER QUALITY STUDIES

Monitoring of water quality parameters and the development efforts for characterizing copper and nickel in the South Bay have allowed a better understanding of the beneficial use of the South Bay.

III-C1 TRACE LEVEL MONITORING IN SOUTH SAN FRANCISCO BAY

Since June 1999, the City has continued to monitor water quality parameters monthly in the South Bay at 12 sampling sites representing deep channel, mid-channel, shallow mudflats, and areas of significant stream influence. The study provides indispensable information describing the spatial and temporal trends in water quality that enable a better understanding of beneficial use impairments in the South Bay.

Findings and Accomplishments

Study results have demonstrated decreasing ambient total copper and nickel concentrations on a northward gradient in the extreme South Bay. Higher total metal concentrations correlate well with storms although dissolved metal levels remain relatively constant. Measured levels of total copper and nickel correlate with total suspended solids (TSS) and, to a lesser degree, with total organic carbon (TOC) and dissolved organic carbon (DOC). Most recently, data analysis has revealed a pronounced inverse relationship between dissolved copper concentrations in Plant effluent and ambient water samples collected from the South Bay. Dissolved copper values tend to increase one to two parts per billion (ppb) during the summer in the Bay, concurrent with a similar lowering of dissolved copper concentrations in treatment plant effluent. This is contrary to the hypothesis that Plant effluent is responsible for elevated copper levels in ambient water samples in the South Bay. Concentrations of both selenium and mercury are below the California Toxics Rule's proposed criteria. Total mercury values were found highest near the confluence of Coyote Creek and the Guadalupe River. Total and dissolved selenium were found highest in Alviso Slough.

To ensure data compatibility across separate investigations, an in-depth review of all data collected to date has been completed. Revised analytical quality control criteria have been implemented to improve overall data quality. These data quality measures will ensure better comparability between this investigation and studies being implemented by other scientific or governmental agencies. Moreover, the high quality of the data has been useful in providing strong supporting evidence for proposed site-specific water quality criteria in the South Bay.

Next Steps

This water column quality monitoring program will continue throughout 2000. The merits of sediment sampling are being evaluated in the context of the City's upcoming Bioassessment Study.

III-C2 CALCULATION OF TMDL FOR COPPER AND NICKEL IN SOUTH SAN FRANCISCO BAY

The emphasis for this reporting period has been on the preparation of the Final Conceptual Model Report and the Final Impairment Assessment Report, and on stakeholder support for TMDL Work Group (TWG) activities. The preparation of the final versions of these reports involved a significant amount of additional technical analysis in response to comments from the TWG and the two distinct Technical Review Committees (TRCs).

Findings and Accomplishments

Conceptual Model Report

The preparation of the Final Report required additional meetings with the TWG's Conceptual Model Subcommittee that resulted in additional calculations to address new questions regarding the calculation of copper loading estimates. The new calculations were compiled and distributed to the TWG. Agreement was reached on the copper loading values included in the report and the final report was approved by the TWG.

Impairment Assessment Report

A Technical Review Committee was convened on September 13, 1999, to review the Draft Final Impairment Assessment Report. The members of this panel were Professor Ken Bruland (UC Santa Cruz), Dr. Jonathan Phinney (Center for Marine Conservation), David Hansen (HydroQual), and Dr. Jim Kuwabara (USGS). The reviewers found that the report was generally well written, complete, and scientifically sound. However, taking the lead from the TWG, there were several questions raised about the potential toxicity of copper to phytoplankton. A detailed summary of the TRC's comments was prepared, and additional data was developed to address the potential effects of copper on phytoplankton. This included an explanation of why the concentrations of copper shown to be toxic to cyanobacteria and other sensitive phytoplankton species may not affect phytoplankton in the South Bay. Additional information on the occurrence of cyanobacteria in the South Bay was also obtained. At the November 10, 1999 TWG meeting the findings of the Impairment Assessment Report were accepted, and the contractor was instructed to prepare the Final Report.

Next Steps

It now appears that the TWG will formally recommend that the US EPA's 303(d) list be updated to de-list copper and nickel as stressors for the South San Francisco Bay. It does not appear that TMDLs will be completed for copper and nickel. Emphasis will now shift to completing specific action plans to ensure that levels of copper and nickel do not increase in the South Bay.

III-D SALT MARSH CONVERSION ASSESSMENT

The 1999 comparative study of South Bay marsh vegetation assessment represents a continuation of a long-term monitoring program designed to detect changes in habitat types within the coastal marshes of the South Bay. This work began with the vegetation mapping in 1989 and subsequent mapping in 1991, 1994, 1995, 1996, 1997 and 1998. There have been a number of enhancements to the study format and methodology from last year. To better communicate and understand the data, the 28 study segments have been grouped into four "reaches," namely upper, transition, lower and reference. The second key improvement was that the aerial photographs were processed using digital orthorectification. This state-of-the-art process enhances the accuracy of the mapping by removing distortion, and allows for precise overlaying of other data layers.

Findings and Accomplishments

The results of this year's study indicate very little change since last year, with approximately 2 acres of salt marsh conversion within the lower reach segments of the Main Study Area. However, the Reference Area (Alviso Slough) experienced a larger area of conversion this year (approximately 6 acres of salt marsh to brackish marsh). Furthermore, comparison between years has shown that the surface area of total marsh and the distribution of marsh habitat types within the South Bay marshes are dynamic. Since 1989, new marsh formation (salt, brackish and freshwater marsh habitats) has occurred in both the Main Study Area (+202 acres) and the Reference Area (+53 acres), with most of the new marsh formation in the lower reach near the mouth of Coyote Creek and the Bay. There has been little net change in the total salt marsh area and in the proportion of salt marsh within the Main Study Area from 1989 to 1999.

Since there are equivalent changes in marsh types in both the Main Study area and the Reference Area, much of the conversion of salt marsh habitats within the South San Francisco Bay are likely caused by large-scale influences that are affecting the entire system.

Next Steps

The City will continue to gather additional information on the magnitude of marsh conversion in 2000. In addition, the City began collecting physical data in August 1999, including continuous monitoring of tidal elevations and salinity in the tidal channels, as well as porewater salinity, bulk density, and pH of the soil in the root zones of marsh vegetation in the Main Study and Reference areas. The analysis of this data and of other freshwater input variables will aid in determining the relative influences of environmental and anthropogenic factors affecting changes in marsh type. Results are expected by the end of the year 2000.

III-E STREAMFLOW AUGMENTATION PILOT PROJECT

The primary objective of streamflow augmentation is to enhance habitat and improve water quality in streams, using recycled water. Because using recycled water for habitat enhancement is not well documented, short-term pilot studies with comprehensive monitoring programs are being implemented to assess the effects of recycled water on aquatic habitats. Presently, summer streamflows and water quality within the Santa Clara Valley Basin are insufficient to support healthy populations of cold-water species. Cold-water species of special interest include the Steelhead trout, proposed for federal listing as threatened, and fall-run Chinook salmon, likely to be proposed for listing.

Findings and Accomplishments

The Coyote Creek Pilot project is in the planning and permitting phase for releasing recycled water into Coyote Creek during the dry season of 2001. It is a stakeholder driven project that involves local environmental groups, regulatory agencies, and several City departments. Four potential sites are being reviewed for possible release of recycled water. One of the more promising locations is just south of Capitol Expressway, where Singleton Road crosses Coyote Creek. Pre-release monitoring of water quality, fisheries, macroinvertebrates, and habitat quality was initiated in 1998 and continued in 1999. This information is being used to develop biological monitoring plans and operations criteria that will assist the City in determining benefits and impacts of recycled water. A mobile dechlorination unit that can be used by this and other recycled water projects has been tested and is fully operational.

Next Steps

Environmental documentation and NPDES permit language are being drafted for stakeholder and regulatory review. Facilities for cooling and delivering the recycled water are currently being designed.

III-F WETLANDS CREATION PILOT PROJECT

A wetland creation pilot project using recycled water is being evaluated as one of the environmental enhancement projects under the revised South Bay Action Plan. The primary benefits of such a project include:

- Enhanced habitat;
- Enhanced aesthetic value; and
- Public education.

This pilot project will be developed more fully when the streamflow augmentation pilot(s) have demonstrated some initial positive results. A stakeholder process may be used to facilitate development of project.

III-G AVIAN BOTULISM

During the period from June – November 1999, the San Francisco Bay Bird Observatory (SFBBO) monitored Artesian Slough, Coyote Creek, and Alviso Slough for the presence of avian botulism and other avian diseases. SFBBO conducts this special monitoring program under contract to the Environmental Services Department. This study is part of a long-term monitoring program begun in 1982. Prompt collection and treatment of ill birds in conjunction with collection and disposal of deceased animals in the surveyed area enable the detection and control of larger disease outbreaks. The report is attached in appendix C.

The creeks, sloughs, and rivers feeding the south bay serve as habitat for many species of egrets, herons, ducks and seagulls. Certain environmental factors that foster the spread of the botulism bacteria are: shallow warm water, fluctuating water levels, high ambient temperatures, presence of vertebrate and invertebrate carcasses, stagnant water, or rotting vegetation.

Twenty-four surveys are conducted within the monitoring period. No outbreak of avian botulism was observed in the study area during the 1999 monitoring season. Gulls were the most frequently found birds.

In conjunction with the study, the SFBBO conducted a wildlife survey of the Artesian Slough, lower Coyote Creek, Alviso Slough, and bordering marshes during the summer and fall of 1999. The report is attached in appendix C.

III-H LOCAL EFFECTS MONITORING

No further studies are currently planned. A final update for this program was included in the July 1999 *Clean Bay Strategy* Report.

III-I BIOASSESSMENT OF SOUTH BAY

The City is required through its NPDES permit to perform a three-year study to evaluate the use of bioassessment as a potential management tool to assess the health of the South Bay's unique ecosystem. The study area includes the area south of the Dumbarton Bridge and the tidally influenced areas of the major tributaries, including Artesian Slough. The study has two main objectives; they include:

1. Collect biological, physical, chemical, and habitat information which will aid in our understanding of the effects of natural variability and the conditions that impact biological communities of the South Bay; and
2. Evaluate the appropriateness of reference conditions and biological indicators recently identified by the Regional Monitoring Program to the South Bay.

Findings and Accomplishments

On September 9, 1999, the City held a technical workshop of local and national bioassessment experts to discuss, in part, the most appropriate biological indicators for measurement. Results from the workshop have greatly assisted the development of a Bioassessment Study Plan, specific for the South Bay, which was submitted to the Regional Board on December 15. A copy of this plan is included in Appendix D. This Study Plan divides the South Bay into three main habitats, namely, open water (deep channel), tidal mudflats, and tributaries and sloughs. These three habitats will be divided into nine sub-habitats, mainly to characterize potential differences in biological condition of the various South Bay tributaries. Benthic infauna (living in the bottom sediments) and epibenthic (living on or close to the bottom) fish and invertebrates will be collected seasonally from each sub-habitat. Additional physical and habitat data will be collected, as well as sediment and water chemistry.

Next Steps

Collaborations among the agencies that plan to conduct biomonitoring activities in the South Bay this summer are currently underway. The City is working closely with these agencies to promote data continuity, quality, and

comparability. The City's sampling design may be modified to accommodate these collaborative efforts.

Sampling is expected to commence in June or July of 2000. Following the first year of sampling, the results will be evaluated and used to direct the sampling efforts for the second year. A final report of the City's findings and recommendations is due to the Regional Board by December 15, 2002.

IV REGIONAL COOPERATIVE EFFORTS

The City is involved in a number of regional cooperative efforts. The primary goal of these efforts is to maximize efficiency and effectiveness by prioritizing issues and solutions and involving key stakeholders on a regional basis.

IV-A URBAN RUNOFF MANAGEMENT PROGRAM

The work of the City's Urban Runoff Management Program is closely coordinated with the countywide efforts conducted by the Santa Clara Valley Urban Runoff Pollution Prevention Program (Program) as well as with the work of the Santa Clara Basin Watershed Management Initiative.

The Countywide Program and each co-permittee, including the City of San Jose, submitted its Annual Report to the Regional Board on September 1, 1999. Copies are available from the Program upon request. This Annual Report formed the basis for the permit reapplication due 12/21/99, 180 days before the expiration of the current permit, and the provisions of the new storm water NPDES permit will be under development with an anticipated permit re-issuance date of late June 2000.

IV-B WATERSHED MANAGEMENT INITIATIVE

The City has been an active participant since 1996 in the Santa Clara Basin Watershed Management Initiative (WMI), a stakeholder-driven process to develop a watershed management plan for the Santa Clara Basin, which drains to San Francisco Bay south of the Dumbarton Bridge. Stakeholders include state and federal regulatory and resource agencies, municipalities and treatment plants, environmental groups, business and industry representatives, and agricultural interests.

The WMI is led by a Core Group, the policy-making body, and is supported by ten subgroups. The City has committed significant staff and fiscal resources to the WMI. City and tributary agency staff are members of all subgroups and the Core Group of the WMI.

Findings and Accomplishments

Since July 1999, progress has been made in the following areas:

Implementation Objectives and Vision Development: The Core Group developed draft implementation objectives to accomplish WMI's goal. The implementation objectives will guide implementation actions to be contained in the Watershed Management Plan. Implementation objectives will be reviewed by stakeholder constituencies and revised during the spring of 2000. In

addition, the Core Group is developing a pictorial vision based on the implementation objectives. The vision will likely consist of an artistic rendering of a model watershed or community.

Regulatory Executive Forum: The regulatory executive forum has met once during the last six months. The forum is intended to bring together high-level decision-makers from the agencies involved in the WMI. The forum will track progress and be a venue for discussing major issues facing the WMI.

Watershed Characteristics and Assessment Report: Extensive progress has been made in the production of the Watershed Assessment Report. A draft of the Watershed Characteristics Report (Volume 1) is due out to the Core Group in April 2000. Development of the Watershed Assessment Report (Volume 2) is pending Core Group agreement on the assessment framework. This framework will guide watershed assessment in three pilot watersheds (San Francisquito Creek, Guadalupe River, and Upper Penitencia Creek). Agreement on the framework will result in an assessment process that has the support of all stakeholders and can form a solid foundation for future assessments and the Watershed Management Plan.

The City is providing significant resources for the development of the Watershed Assessment Report by contributing direct funding and directing CAL FED grant monies to the Water District's Watershed Assessment consultant contract. The City is also providing staff resources to the team that is responsible for overseeing the work plan for the assessment process.

TMDL: Please refer to Section III-C2 for an update on the TMDL effort for copper and nickel and Section III-B for an update on the Guadalupe Watershed Mercury TMDL effort.

Watershed Grants: The City believes that the success of the WMI depends on the support and involvement of stakeholders. To facilitate stakeholder input, the San Jose City Council and the Treatment Plant Advisory Committee (TPAC) approved development of a pilot watershed grants program. A draft report evaluating the watershed grants program is being developed. Highlights of the program include:

- The research programs supported by the grant provided a better understanding of the nature and extent of anadromous fish habitat in the Guadalupe River, Coyote and Stevens Creeks watershed, together with an improved sense of both impact to fish populations in these streams and possible management actions needed to solve these problems.
- Innovative solutions to local watershed problems through the Industrial Technology Transfer Program, a joint program of the Silicon Valley Manufacturing Group and the Silicon Valley Pollution Prevention Program.

- Improved participation in the Watershed Management Initiative. SVTC, etc. believe that communication among stakeholders improved significantly as a result of improved participation in the process.
- The grants provided for educational activities, through Hacienda Science School and through the Teacher Training workshops coordinated by the Aquatic Outreach Institute, increased the awareness of watershed management, water quality and water conservation issues among teachers and students.
- Hacienda Science School has been able to leverage the initial monies provided by the City, gaining more than 10 new Apple IMac computers for use by students in the science and environmental programs at the school.

Facilitation Contract: The City has continued to fund a contract with MIG, Inc. for independent facilitation to the Core Group and Subgroups as needed, as well as to provide leadership on process issues, such as development of objectives for the WMI.

Program Manager/Project Coordinator: City staff coordinated the hiring of a project coordinator to be funded by a grant received from the State Board and stakeholder contributions. The new project coordinator, a San Jose temporary employee, started November 1, 1999.

Next Steps

The Core Group will focus on the preparation of the Watershed Assessment report over the next six months..

IV-C REGIONAL MONITORING PROGRAM

The Regional Monitoring Program (RMP) is a comprehensive monitoring program administered by the San Francisco Estuary Institute. It assesses sediment and water quality, as well as the toxicity and bioaccumulation of pollutants. The RMP monitors numerous locations in San Francisco Bay and the Sacramento/San Joaquin Delta now sampled two times per year, during the winter and summer. The Cities of San Jose and Sunnyvale support two additional stations in the southern end of the Bay, Stations C-3-0 and C-1-3, respectively. They are monitored in cooperation with the Regional Board and the San Francisco Estuary Institute.

The City also provides significant resources toward the Estuary Interface Pilot Study and the Atmospheric Deposition Pilot Study. These region-wide monitoring programs are indispensable management tools for the greater Bay/Delta governments.

Next Steps

A final report of the 1998 RMP sampling year is due to be released in February 2000. An annual meeting to discuss the results will be held by the San Francisco Estuary Institute on March 13, 2000. The City will continue its active support and participation in the Regional Monitoring Program throughout 2000.

V OUTREACH

The City provides outreach on flow reduction and pollution prevention. Highlights of the outreach activities for the last six months are presented below.

V-A FLOW REDUCTION PUBLIC OUTREACH

Flow reduction outreach is done in support of the South Bay Water Recycling Program and the Water Efficiency Program.

V-A1 SOUTH BAY WATER RECYCLING

To provide guidance on Phase 2 of SBWR and its long-term direction, an advisory committee was convened in March 1999. A series of open meetings were held through August 1999 to gain input on community values and concerns. The advisory committee is comprised of a mix of civic leaders including the Superintendent of Schools, the head of the San Jose/Silicon Valley Chamber of Commerce, the President of the Medical Association, and representatives of community, landscape and farming associations.

The advisory committee and the general public identified a number of issues related to long-term strategies. Public acceptance of potable reuse, long-term health and environmental effects of water recycling, and the relationship between recycling, conservation and growth have all been brought up as topics for future study and development. Upon completion, these studies and discussions will result in selection of specific projects to be implemented during the Phase 2 time frame and a recommendation of long-term strategies for optimum future reuse.

For this reporting period, outreach activities for SBWR included the following:

- An Advisory Committee meeting to present survey findings and gain input on Phase 2 strategies & long-term plan draft;
- A trip (with staff from the Water District) to Dublin to research their experiences with potable reuse;
- SBWR outreach meetings with San Jose/Silicon Valley Chamber of Commerce, Silicon Valley Manufacturing Group, and environmental groups;
- Events such as Pumpkins in the Park, and presentations at the Water District facility opening and the San Jose Rotary Club;
- An introduction video on water supply and discharge challenges that aired on San Jose cable access channel;

- A City staff-written article that appeared in Evergreen Times in December 1999; and
- Santa Clara construction notification to public & commercial audiences.

V-A2 WATER EFFICIENCY PROGRAM

The Water Efficiency Program provides public outreach in coordination with the Water District. This cooperative approach assures unified messages and an effective use of resources for each agency and sustains the length of time that the messages are heard.

V-A2.1 COOPERATIVE OUTREACH EFFORTS

In an effort to maximize the number of water conservation messages reaching tributary area residents, the City and the Water District cooperatively planned and reviewed outreach campaigns that began in spring 1999 and continued throughout the dry weather period. The Water District's late spring/early summer campaign focused on general water conservation, which also emphasized the need for indoor water conservation as it relates to the flow issue. In mid-summer, the ESD campaign focused on the Water District's limited time offer for toilet rebates and gave several more opportunities to promote conservation programs.

V-A2.2 MULTI-FAMILY DWELLING (MFD) OUTREACH

In July 1999, the Water District sent a letter to all owners and managers of multi-family dwellings in Santa Clara County encouraging their participation in the limited time \$100 rebate offer. The MFD Voucher Program was still available but the voucher amount remained limited to \$75 per toilet. During this period, a full-page color ad, promoting the larger rebate offer, appeared in *Apartment Magazine*, a publication of the Tri-County Apartment Managers Association. Once that rebate ended, the voucher remained at the \$75 value until the end of the year.

From January to March 2000, owners and managers of multi-family dwellings will be offered an additional \$25 per toilet for each ULFT installed on their properties. An introductory postcard was mailed to all owners and managers of multi-family dwellings to remind them that this offer would begin in January. Telemarketing efforts are on going for this latest offer and there

will be a direct mail piece mailed to complexes with 30 or more units in early January 2000.

V-A2.3 ULFT REBATE PROGRAM

Prior to the launch of the 1999 *Slow the Flow* campaign, the Plant executed a cost-sharing agreement with the Water District. Included in this agreement was the provision of the limited time offer for the ULFT Rebate Program, which offered an additional \$25 above the regular \$75 rebate. Participants needed to retrofit their older model toilets between August 1 and October 31, 1999, to qualify. After this date, the seven-year old toilet rebate program ended and rebates were no longer offered to the general audiences of the tributary area.

The campaign's aim was to provide a strong call to action in all outreach materials and to raise public awareness of the consequences of discharging fresh water into the San Francisco Bay as well as to overcome objections and misperceptions about ULFTs.

Multi-lingual outreach efforts were included in this campaign. The major elements of the English outreach campaign included:

- A direct mailer to 233,000 households in the tributary area;
- 39 half-page print ads in the San Jose Mercury News;
- 125 bus signs;
- Special events, applications, employee buttons and displays at major plumbing retailers' point-of-sale;
- 3 Val Pak distributions within the tributary area;
- Web site (www.slowtheflow.com) featuring downloadable program application packet;
- Media coverage—Channel 11 “Consumer Guy”;
- Special events that are detailed in Section V-A2.5;
- Supplemental bill insert by District; and
- Supplemental radio and print ads by District.

Special efforts were made to answer Vietnamese and Spanish telephone hotlines live during peak periods of response. Program materials, including the rebate application packet, were translated into these languages. The major elements of the Spanish and Vietnamese outreach campaign included:

- 32 full and half-page print ads in 4 Vietnamese newspapers
- 12 full-page color print ads in 2 Spanish publications

- 240 paid Spanish language radio spots airing on 2 radio stations for 6 week period
- 144 free Spanish language PSAs on 2 radio stations for 6 week period
- 144 free Spanish language promotional announcements on 2 radio stations for 6 week period
- 1 Val Pak distribution (targeted neighborhoods with large concentration of Spanish-speaking homeowners)
- Special events including Fiesta de Patrias and Evergreen Multi-cultural Festival, and live remote and a van pick-up events at Home Depot and OSH by Spanish language radio stations
- 25 bus signs

Preliminary Results

The Water District reported that as of December 1999, 16,988 toilets were installed in the Plant's tributary area throughout the run of the limited time offer. Approximately 3,000 toilet rebates remain to be processed. ESD received a total of 10,684 requests for rebate application packets, of which 36% poured in from the *Slow the Flow* website.

V-A2.4 SLOW THE FLOW AND SAVE THE BAY LOCAL BUSINESS AWARENESS CAMPAIGNS

In conjunction with the residential ULFT campaign, efforts continued on the *Slow the Flow* and *Save the Bay Local Business Awareness Campaign* from June through October 1999. As mentioned in the previous update, the campaign was co-sponsored by the Silicon Valley Manufacturing Group, the Silicon Valley Chamber of Commerce, the Water District, and the tributary agencies of the Plant. The campaign's purpose was to encourage employees to purchase ULFTs for their homes. Approximately 133 companies participated by distributing program information to their employees. Roughly 33 companies sponsored brown bag events that ESD staff visited with rebate program promotional materials. A press event emphasizing the end of the rebate program and the cooperation between the sponsoring agencies was held in August 1999.

V-A2.5 SPECIAL EVENTS

ESD participated in the following special events to advocate water conservation to audiences directly:

- Pumpkins in the Park;
- Home and Garden Show;
- Council member events;
- Chinese Moon Festival;
- Water Awareness Night at the San Jose Giants game; and
- Compost bin sales.

Next Steps

ULFT retrofit programs in the future will most likely be targeted to MFDs and audiences considered more difficult to reach. Without the ULFT rebate program, outreach for general audiences will most likely include reminders of water conservation and Bay habitat messages in a campaign beginning in the spring of 2000.

V-A3 COMMERCIAL/INDUSTRIAL/INSTITUTIONAL (CII) OUTREACH

In addition to the one-on-one outreach afforded by the Flow Audit Study Program, efforts also included attending the Silicon Valley Manufacturing Groups Projections 99 Symposium in September 1999. A second presentation with the Association of Facility Engineers is scheduled for January 2000 and increased advertising will feature the Financial Incentives Program, slated to run in the Silicon Valley Business Journal.

V-B POLLUTANT REDUCTION OUTREACH

This section of the Clean Bay Strategy report features highlights and changes for the City's pollutant reduction outreach activities. These activities include regional coordination and collaboration efforts, outreach to the City's five major audience categories⁶, and the City's web site, tour program, and outreach assessment efforts

V-B1 REGIONAL OUTREACH

The City continued to place emphasis on coordinating with other local and regional outreach programs. The goals for this involvement are to:

⁶ These are: General, Targeted Residential, Non-regulated Commercial and Industrial, Regulated Commercial and Industrial, and Municipal & Agency audiences.

- Assist in developing and implementing effective regional outreach and education programs that deliver consistent messages; and
- Coordinate the pretreatment and stormwater pollution prevention outreach message delivery with regional activities that support and deliver similar messages.

Findings and Accomplishments

Coordinating City objectives with regional programs and activities has significant benefits - The cost of implementing public education and outreach programs is shared, reducing the cost to the City. For many of the regional, the City received between three and five dollars of services and products for each actual dollar spent.

City staff continued their active representation on outreach committees of the Bay Area Dischargers Association (BADA), the Bay Area Pollution Prevention Group (BAPPG), the Public Education and Technology Transfer Committee of BAPPG, and the Santa Clara Basin Watershed Management Initiative (WMI). The City is also active in the Santa Clara Valley Urban Runoff Pollution Prevention Program (the Program), and is represented at the Bay Area Stormwater Management Agencies Association (BASMAA).

During this reporting period, City staff participated in the following regional activities and projects:

- The joint BASMAA/BADA Media Relations project;
- Coordination of the review of regional Spanish radio ads for BAPPG's Spanish Radio ad campaign on radio station KSOL;
- Comment on the development of a regional BMP for aqueous cleaners;
- The joint BASMAA/BADA regional ad campaign;
- Facilitation of the annual prioritization of BAPPG's issues and pollutants of concern;
- Selection of BAPPG and Program projects for FY 99/2000;
- Coordination between BAPPG and BADA on budget processes;
- Preparation of a combined outreach strategy to coordinate the public education efforts of the WMI and the Program..

V-B2 GENERAL OUTREACH

The General audience includes all residents. The City delivers its messages to this audience through participation in regional- and City-sponsored activities that include tours, events, ads and outreach campaigns, and a residential web site.

Residential Survey

The General audience includes all residents. The City delivers its messages to this audience through participation in regional- and City-sponsored activities that include tours, events, ads and outreach campaigns, and a residential web site.

V-B2.1 RESIDENTIAL OUTREACH

Residential Survey

The City conducted a San Jose-specific evaluation of residential audiences two years ago, and planned to conduct this survey at three-year intervals to assess effectiveness for residential outreach. With recent changes to the Program's residential survey, San Jose's residential survey became a duplicative effort, and will be dropped from our FY 2000/2001 workplan.

Residential Web Page

Internal evaluation of the City's web site revealed that water pollution prevention messages could be made more accessible to web site visitors by grouping and reorganizing the messages, and by providing direct access through a "hot button". San Jose completed a new web page accessed through a hot button titled "Water Pollution Prevention for Residents". The site explains how the everyday actions of residents contribute to water pollution, and suggests alternative behaviors.

V-B2.2 ESD WEB SITE

The last ESD site traffic analysis revealed that there were 4,895 user sessions in December of 1999, averaging 157 user sessions per day. Nearly 49% of the users were classified as an industrial or commercial inquiry. In addition to information on key wastewater and stormwater programs and frequently requested forms and contact information, there are pages dedicated to the Watershed Management Initiative, commercial facilities, the "Green Building" program, resources for educators, and residential water pollution issues.

New materials posted on the ESD web site during this reporting period include "Resources for Educators", and information about "Ultra Low Flush Toilet Rebates" for apartment managers and owners, the new "Green Building Program", and the "Watershed Management Initiative". Numerous forms and other regulation-related materials were also uploaded.

The ESD web site is located at the following address:

<http://www.ci.san-jose.ca.us/esd>

V-B2.3 PLANT TOURS

Plant tours are used by different divisions of ESD to highlight the importance of pollution prevention, discuss the need for residential and commercial water conservation, and instruct students on the process of wastewater treatment. As a mechanism to link the result of an action (i.e. dumping hazardous materials or even just too much water down the drain) to a place (i.e. the Plant and the Bay), tours have become an effective method to reach various audiences with these important messages. Feedback from some teachers indicates that the information is used in as many as four classes after the visit, and the students are taking the information home to their families.

In the last six months, 38 tours were given to a total of 667 attendees. There was a workshop in November 1999 in which seven new tour guides were trained in the procedures. City staff finished work on collateral material for the tours, including a new Plant brochure. The new Plant brochure, *Treating and Recycling Water, as Nature Intended*, was completed and is now available as a valuable tool for tour participants. A copy of this brochure is included in the pocket on the rear cover of this report.

V-B2.4 ASSESSING OUTREACH

Goals for assessing outreach include ensuring that the greatest effect is achieved for the least cost. To achieve this goal, the City must be able to assess how well a given outreach tactic succeeds at changing behaviors and understanding, and know the cost of the tactic. Tactics must also be selected based on an understanding of how the target audience receives information, the beliefs and values of that audience, and what motivates them to change. Progress in assessing outreach effectiveness during this reporting period includes:

- Completion of a survey of San Jose's regulated industrial users. Project results will be included in the next report.
- Progress on the web site evaluation project: City staff Selected of a contractor, developed survey language, installed the necessary software, and is currently conducting a beta-test of the software. Findings will be used to improve web outreach effectiveness.

- Design of measures for evaluating schools programs, including a measure for comparison of cost.

V-B3 TARGETED OUTREACH

The City delivers its targeted water pollution prevention messages using events, an Internet website, specific BMPs, and speaking engagements. During this reporting period, the City produced Spanish-, Vietnamese-, and selected English-speaking outreach materials. The City also coordinates its efforts for these audiences with BAPPG and the Program.

The City produced *Do it Right: Auto Repair*, a colorful poster that provides simple tips for maintaining a clean shop in order to prevent pollution. This poster in English, Spanish, and Vietnamese was developed to help inspectors educate shop managers. It is intended for display in shops for staff and managers to utilize as a reference. During this report period, the poster was seen and requested by representatives from EPA Regions II and III.

V-B3.1 SPANISH SPEAKING AUDIENCE

During this reporting period, the City's outreach to the Spanish speaking community included:

- Translate text⁷ and produced a Fact Sheet for Spanish speakers on ant control.
- Host a booth radio station KSOL's family outreach event in July 1999 to assess the value of this event for BAPPG constituents. Over 60,000 attended the event. The City conducted a survey of hundreds of event attendees and found that 40% of those attending this event come from outside of Santa Clara County, and 60% from inside the County.
- Propose a project to characterize Hispanic audiences in the Santa Clara Valley. Evaluation of two local surveys identified possible differences between the currently accepted assumptions about Hispanic audiences and the survey responses. The project was accepted, and is planned for FY 2000/01.
- Assist with text and translations for BAPPG's annual KSOL radio advertisement campaign, and the on-air contest for Spanish speakers.

⁷ Special thanks to the "Our Water Our World" partnership for the use of English text prepared by that group.

V-B3.2 SCHOOL AND YOUTH OUTREACH

School Programs for the reporting period stressed storm drain pollution prevention, Bay protection afforded by the Plant, water conservation, and the value of recycled water. A partial list of San Jose's school-related activity for this reporting period includes:

- City Park Rangers gave water awareness presentations to 52 classes, grades 4-7, representing more than 1100 San Jose students.
- The Math and Science Teacher Education Program, a public consortium of college educator's, trained 11 to conduct sewer science labs.
- The City's *Wastewater Paths* poster received a Joey Award. The Joey Awards are sponsored by the San Jose Convention and Visitors bureau, and "...celebrate creativity in broadcast, print, and interactive media."
- The City has finished the development and piloting of a new lesson plan, *It Goes With the Flow*, to accompany its award winning Wastewater Paths Poster. City staff has trained 30 teachers in the use of this poster and lesson, and expects to train 30 more during the next 6 months.

As a result of the City's school programs, up to 25% of public school students in the Plant's tributary area were exposed to messages on Bay and creek protection, wastewater treatment, recycled water, and wetland protection. The City's school programs are described more completely in Appendix E.

V-B4 COMMERCIAL AND INDUSTRIAL OUTREACH

The City delivers its outreach messages to commercial and industrial audiences using an IU Academy, an IU newsletter, events, website, tours, and speaking engagements. Source Control Inspectors also deliver outreach materials and messages during inspections.

The Commercial and Industrial audience is further divided into regulated and non-regulated groups. "Non-regulated" refers to businesses not regulated by the Pretreatment Program, but which may still contribute pollutants of concern.

V-B4.1 INDUSTRIAL USER (IU) ACADEMY

During this reporting period, the city held the IU Academy class "Pretreatment Program for Permitted Industrial Users" (PPPIU).

Twenty-two people from seventeen companies attended. By special request, the Academy also conducted an on-site course for a permitted company during their monthly managers meeting. Between 25-30 process engineers participated in the exercise.

The IU Academy has changed significantly in response to the changing needs of the Plant's Industrial Users. The class content was modified and the format shortened to address our new market comprised of employees that have changed companies, new employees, or employees that have moved into the environmental/wastewater responsibilities at established companies. For a more complete discussion of this transition, see Appendix E.

V-B4.2 INDUSTRIAL USER (IU) NEWSLETTER

During this reporting period, two new issues of the *Tributary Tribune* (an IU newsletter) were mailed to the Pretreatment Program contacts at 400 permitted companies, and to 150 other interested parties.

The summer issue discussed highlights from the 1999 Clean Bay Strategy Report (Mercury Total Maximum Daily Load Participation Plan, Pollutant Loading from the Industrial Users, and The Future of Water Recycling in the South Bay update). Information on the Slow the Flow campaign was also featured.

The winter issue discussed the status of Pretreatment Streamlining activity at the federal level, an update on Analysis of Oil and Grease and Total Petroleum Hydrocarbons, (laboratory Method 1664), information on the off-hour inspection arm of the Pretreatment Program, and information on the upcoming CWEA Industry Awards.

The City conducted a survey of regulated Industrial Users to determine how useful IU's find the Newsletter. A discussion of survey findings will be included in the next report. Copies of the *Tributary Tribune* can be found in Appendix E, and are also posted on the ESD web site.

V-B4.3 SPECIALIZED BMPS AND MATERIALS

During this reporting period, the City completed a brochure titled "*Wastewater Plan Checks*" to assist contractors, architects, engineers, and business owners with San Jose restaurant grease plan check process. The brochure outlines the process, its purpose, and what inspectors will be looking for during a plan

check. A copy of the brochure is included in the pocket on the rear cover of this report.

Appendix A

Clean Bay Strategy Timeline

Appendix B

Status of Flow Audit Study participants

Appendix C

1. 1999 Avian Botulism Monitoring Program Report
2. 1999 Wildlife Surveys in Artesian Slough, Coyote Creek, and Alviso Slough

The above reports are available upon request. For a copy call (408) 945-3000.

Appendix D

Bioassessment Study Plan – December 1999

The above report is available upon request. For a copy call (408) 945-3000. It is also available through ESD's web page at:

http://www.ci.san-jose.ca.us/esd/pub_res.htm

Appendix E

Outreach

PART I

OUTREACH FOR POLLUTION PREVENTION

1.0 GENERAL OUTREACH

1.1 Wastewater Treatment Plant Tours

1.2 Internet Web Site

1.3 Events

1.4 Watershed Involvement Projects

1.5 Speaking Engagements

2.0 TARGETED OUTREACH

2.1 School and Youth Outreach and Education

2.2 Non English Speaking Audience

3.0 Regulated Commercial/Industrial/Institutional Outreach

3.1 Industrial User Newsletter - “Tributary Tribune”

3.2 Industrial User (IU) Academy

3.3 Best Management Practices for Regulated Industry

3.4 Events

3.5 Web Site

4.0 UNREGULATED COMMERCIAL/INDUSTRIAL OUTREACH

4.1 Best Management Practices and Outreach Materials

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5.0 OUTREACH TO AGENCY AND MUNICIPAL SOURCES

5.1 Materials Request from Outside Agencies

PART II

BEST MANAGEMENT PRACTICES AND OUTREACH MATERIALS

PART III

TRIBUTARY TRIBUNE NEWSLETTER

PART I

OUTREACH FOR POLLUTION PREVENTION

This appendix documents the details of progress on outreach efforts undertaken during the reporting period, including pollution prevention and flow reduction activities. All outreach materials described in this section are available to anyone in the tributary area that wants to use or electronically customize and reprint them.

This appendix is organized by pollution prevention outreach audience. Under each audience, the tactics used to deliver water pollution prevention messages to that audience are detailed.

1.0 GENERAL OUTREACH

The goals and objectives for outreach to San Jose's general residential audience⁸ are:

- | | |
|-------------|--|
| Goal 1 | Public adoption and sustained use of pollution preventing behaviors. |
| Goal 2 | Public awareness levels that promote adoption and sustained use of pollution preventing behaviors. |
| Objective 1 | After five years, use of recommended behaviors increases over the baseline. |
| Objective 2 | After five years, awareness and understanding of the reasons for implementing recommended behaviors increases over the baseline. |

The City delivers its general water pollution prevention messages to all audiences using Plant tours, an Internet web site, events, public participation projects, and speaking engagements.

1.1 Wastewater Treatment Plant Tours

During the past six months, 38 tours have been given to 667 people. Tours provide an interactive link between personal action, such as conserving water, and a place – the Water Pollution Control Plant and ultimately, the South Bay. The tours highlight

⁸ For this report period, San Jose's school-related activities were conducted as part of outreach to the "Residential:General" audience. In the next six months, school-related outreach will be re-designated "Residential:Targeted". This change will enable better internal coordination of outreach projects.

the importance of water conservation, pollution prevention, wastewater treatment, and water recycling.

Plant tours are given to general, Junior High through High School, college and technical audiences. The tours provide an overview of the Plant, its functions and its importance to San Jose and its Tributary agencies, and encourage personal responsibility in water conservation, and pollution prevention.

The City-funded grant to the Don Edwards San Francisco Bay National Wildlife Refuge Environmental Education Center at Alviso continued its first year of implementation. The interpretive education specialist hired for the position added a Summer Camp for teens and a water awareness room to the Centers' offerings. The tours encourage individual responsibility for pollution prevention, provide an overview of the Plant, its functions, and the importance of the Plant to San Jose and the rest of Silicon Valley.

During this report period, a new plant brochure, *Treating and Recycling Water, as Nature Intended*, was completed and is now available as a valuable tool for tour participants. A copy of this brochure is included in the pocket on the rear cover of this report.

1.2 Internet Web Site

ESD maintains 2 web sites located at:

<http://www.ci.san-jose.ca.us/esd> and

<http://www.slowtheflow.com>

From the last ESD web site traffic analysis, it appears that user sessions are continuing to increase. Forty nine percent of the user sessions were classified as belonging to a company (i.e. industrial or commercial inquiry). A complete discussion of outreach activity relating to the ESD web site can be found in Section V-B4 of this report.

1.3 Events

Staff supported the Water Efficiency Program at Pumpkins in the Park, held October 16th. The event focused on encouraging residents to install ultra low flush toilets (ULFT) by taking advantage of a \$100 per toilet rebate. Each ULFT toilet saves the 30 gallons of water per.

1.4 Watershed Involvement Projects

The City continues to be an active member of the Creek Connections Action Group, a coalition of local agencies and nonprofit organizations involved in creek protection. In addition to jointly coordinating and helping with the Santa Clara Countywide Coastal Clean-up Day event, City staff sponsored 4 sites on September 18, 1999.

The City is also involved in outreach for the Santa Clara Valley Watershed Management Initiative (WMI). Outreach staff from San Jose worked with staff and participants from the Santa Clara Valley Urban Runoff Pollution Prevention Program to plan a WMI “Kickoff” event to commemorate the signing of the WMI agreement by over 30 representatives from business, government, environmental groups, and individual citizens. The event featured a press conference hosted by San Jose’s new Mayor, Ron Gonzales.

Outreach staff from San Jose is currently working with staff and participants from the Santa Clara Valley Urban Runoff Pollution Prevention Program to plan a WMI symposium for late spring in 2000.

1.5 Speaking Engagements

There were no requests by Residential General audiences for speaking engagements during the reporting period. Previous Clean Bay Strategy Reports included an appendix of materials distributed through speaking engagements. Since no speaking engagements were requested, the above mentioned appendix is not included with this Report.

2.0 TARGETED OUTREACH

The goals and objectives for outreach to San Jose’s general residential audience are:

Goal 1	Reduce flow and pollutant load from selected residential sources.
Objective 1	Use of recommended behaviors increases over the baseline for targeted audiences and issues.
Objective 2	Awareness and understanding of the reasons for implementing recommended behaviors increases over the baseline.

The City delivers its targeted water pollution prevention messages using speaking engagements, an Internet web site, specific BMPs, and events (when applicable).

2.1 School and Youth Outreach and Education

Schools and Youth Outreach is seen as a necessary long-term approach in educating residents about protecting our natural waters. The strategies adopted by the Environmental Services Department's Youth Watershed Education Team are:

- Train teachers rather than teach individual classes. Teacher training is an investment that produces long-term benefits beyond just the first year the teacher implements the materials. The training materials impact students in successive years, throughout the teacher's career.
- Provide tools and curriculum (or support others) for youth leaders/teachers that emphasize hand-on learning. If no adequate materials with our messages on South Bay water issues exist, ensure development of new grade-level appropriate materials. Don't support the development of materials in areas that we judge to be adequately covered.
- Value the needs of our customers. Get advice from district science coordinators and youth educators/leaders and survey teachers for needs relevant to the dissemination of our messages.
- Influence the outreach messages and strategies of regional groups involved in youth environmental education.
- Integrate the water messages to reflect the reality that they are inextricably linked. When possible, show how air pollution and solid waste disposal impact water.

The effectiveness of outreach is evaluated by best professional judgement based on activity audits, and review of program reports. School programs vary in the depth of exposures they give students. To compare school programs, staff uses the price per hour of student exposure. During the reporting period, City staffs coordinated or participated in the following youth outreach efforts:

Wastewater Treatment Lab Pilot Project

San Jose staff has begun participating in an effort led by the Math and Science Teacher Education Program (MASTEP) based at SJSU. This summer, a SJSU engineering professor trained nine teachers in the Plant service area to teach a wastewater treatment lab. These nine teachers plan to use this seven-day module for between 40-50 high school classes this school year.

These classes represent up to 1500 students and 9500 student hours of water quality-related education. ESD is funding the printing of student workbooks and laboratory consumables for classes in our Plant area on a pilot basis. Staff has also contributed to the development of a teacher's workbook. This project costs \$1.26 per student hour.

Rangers in School -Water Awareness Program

San Jose Park Rangers visit 4th to 7th grade classrooms and conduct activities focused on preventing pollution to our neighborhood creeks. The Rangers use the interactive EnviroScape model to demonstrate the causes and solutions to polluted urban runoff.

Last year, City Park Rangers visited 56 schools and presented 202 talks to 5,586 students. This year, the Rangers plan to conduct 160 presentations to about 4400 students. During this reporting period the Rangers gave 52 presentations to 1100 students.

As a pilot extension of the program, Rangers will provide follow-up field trips at Kelley Park with hands-on activities in the creek. This project yields an estimated 5,500 student hour, at \$3.07/student hour.

Wastewater Paths Lesson

ESD has completed the development and piloting of a new lesson plan for 5th – 8th grade classroom and science teachers. The lesson uses the award-winning *Wastewater Paths* poster as a tool to promote student understanding of the difference between the sanitary sewer and storm sewer systems. Students demonstrate their understanding using scenarios of household chores to demonstrate the path of their wastewater in pictures and essays. Since the concepts of this lesson are complex, we are distributing the lesson package (lesson, poster, and transparencies) only at teacher training sessions. Distribution is expected exceed 60 teachers this year. Packet distribution costs about \$15 per teacher.

South Bay Water Connections Curriculum

In January, a teacher training workshop at the Resource Area for Teachers (RAFT) will incorporate the *Wastewater Paths* lesson and the Alviso Environmental Education Center's *Slow the Flow* curriculum.

Last year, 25 teachers attended the first teacher training workshop on the middle school curriculum. As a result, we conducted 12 school tours of the Plant.

Plant Tours

The Tours Task Force has developed a one-hour standardized school tour for 5th through 12th grade students. The tour is designed to introduce basic concepts involved in wastewater treatment, and emphasizes how our urban community affects the local environment. This will help students become more informed adults as they become future decision-makers.

Teacher Packets - It's Wet, It's Wild, It's Water

Programs that educate the educators are essential and cost effective. Over the past six months, the City has distributed 41 teacher's packets. Each packet includes lesson plans and a video covering water conservation and household pollution prevention. This video is for grades 3 to 6, and is distributed to teachers in the Plant's tributary area free of charge. Total distribution to since the It's Wet, It's Wild, It's Water packet was introduced is 1017 packets. If every teacher that has received a packet shows this video to a class of 20 each year, students, nearly 20,000 students will be exposed to our water messages each year.

School Presentations

Staff gave presentations to about 290 students in the first half of this 1999-00 school year. Presentations were given to 2 high school science classes, one fifth grade class, a third grade assembly of seven classes, and at an after-school care facility. The high school presentations dealt the protection of the Bay provided by the San Jose/Santa Clara Water Pollution Control Plant, what happens when pollutants from our streets gets into the creeks and Bay, and the value of recycled water. The elementary age presentations focussed on protecting creeks by proper disposal of wastewater from common household activities using a skit format.

Grant Programs

Don Edwards San Francisco Bay National Wildlife Refuge Center Grant

The City has a grant agreement with the San Francisco Wildlife Center (at Alviso). Under this agreement the Center has hired a full time person to conduct interpretive programs for general and school visitations. The City's pollution prevention and water conservation messages have been incorporated into these presentations. Included in this program are combined Plant and Refuge Center tours that feature a tour of the Plant, a tour of the wetlands the Plant protects, and tell how everyone can help protect the Bay. Nine teachers have participated in combined tours this year. The program has served 4400 visitors and has trained 23 teachers. The teacher trainings and tours have reached over 92 classrooms, at a cost per student hour of \$4.75.

Hacienda School Grant

The City's Watershed Grant Program has provided a grant to Hacienda Elementary School, San Jose's only elementary school environmental science magnet. The purpose of this grant is to enhance the *Adopt-A-Watershed* curriculum as part of the school's continuing efforts to teach children science, using the Guadalupe River

watershed environment as a hands-on laboratory. The goal of the project, and Hacienda School as a whole, is to teach children to value the natural world, to encourage them to begin to tackle some of our shared environmental problems and to provide them with the tools necessary to find solutions to these problems. Funds are being used for Discovery Pack supplies for creek-side visits by 75 students, library/media resource materials for 800 students, field trips for all 800 students, and teacher training for 42 teachers.

Aquatic Outreach Institute Grant

As part of City's the Watershed Grant Program, the Aquatic Outreach Institute is being funded in the amount of \$34,040 to implement its *Kids in Creeks* Teacher Training Workshop in the service area of the Water Pollution Control Plant. In October, 36 teachers (K-12) participated in a two-day training focused on investigating and protecting creek life. Each teacher will do an action project with his or her students and conduct pre-and post class surveys as part of the assessment process. This grant project involves over 1,080 students at a cost of about \$31 per student.

Watershed Action Fund

The Santa Clara Valley Urban Runoff Pollution Prevention Program's Watershed Action Fund largely supports educational programs for school groups. This academic year, the Fund group will spend \$93,000 to reach 7,400 students. San Jose contributes 30% of these funds. The goal is to cooperatively align regional efforts to promote messages and strategies for stormwater education that are mutually beneficial for each of the agencies, including ESD.

Youth Watershed Education Grants

Youth Watershed Grants are designed to promote understanding and stewardship of the Santa Clara Basin Watershed among South Bay youth (in grades K-12) by supporting innovative projects for youth education, curriculum development, adoption and implementation of published watershed-based curricula, and teacher/youth leader training. Projects must address at least one of the following key concepts: (1) we need to protect our watershed. (2) The San Jose/Santa Clara Water Pollution Control Plant is important. (3) Water conservation is important in the South Bay. There is \$50,000 available for this fiscal year and it will be dispersed over two grant cycles to schools or nonprofit organizations. Seven grants were approved for the first grant cycle. These grants will impact 61 teachers and over 5585 students.

Coordination

CREEC Network

CREEC stands for California Regional Environmental Education Coordinator Network. CREEC is a fulfillment of the vision of Bill Andrews, consultant in Environmental Education with the California Department of Education, to bring together local, state and federal agencies in support of the development of eco-literate students. California's 11 Regional Coordinators are responsible for providing access, referral and resource to environmental education activities and events. Tamara Gilbert represents San Jose's Youth Watershed Education Team (YWET) on the advisory board for Region V (which includes Santa Clara, Santa Cruz, Monterey, and San Benito counties). The CREEC Network enables ESD to coordinate activities with other environmental agencies and educators. Among the activities that Region V is sponsoring this year are: 1) teacher training workshops, the 5th annual Resources in Environmental Education Fair (REEF) for educators, and 2) publication of an environmental education resource directory for teachers, based on the model first developed with the Santa Clara Valley Environmental Partners in 1996.

Staff attended the teacher training workshop in November, which was designed to help teachers understand State Science Standards. San Jose staff attended to learn how to provide curricula on creek and Bay protection to teachers that feed into the requirements they have to meet.

2.2 Non English Speaking Audiences

On July 18, 1999, the City of San Jose Environmental Services Department, Watershed Protection Division staffed a booth at the KSOL Festival Del Sol event at the Santa Clara County Fairgrounds. The targeted demographic group for this event was the Hispanic community. The purpose of our attendance was to evaluate the usefulness of the event for delivering residential messages to the Hispanic community, and to determine whether or not the event drew significant audience segments from outside Santa Clara County. City staff delivered materials to help educate attendees about proper disposal of household chemicals to protect our creeks and the Bay. The interactive "Pluck a Duck" game was used to attract people to the booth and relay our message.

An informal survey using zip codes was conducted at the booth. A total of 425 people gave their zip codes. The results of the survey are shown below. Based on these results, 44 percent of the booth attendees were from San Jose or Tributary areas. The next highest percentages are Alameda County (13%) and San Mateo County (11%). Based on these results, it appears that there are opportunities to co-fund and operate the booth with agencies from several other counties in the future.

City or County	Number of participants
San Jose and tributaries	189
Other Santa Clara County	22
San Mateo County	45
Contra Costa County	28
Alameda County	56
San Francisco County	25
Santa Cruz County	22
Monterey County	10
Other	28
Total	425

3.0 REGULATED COMMERCIAL/INDUSTRIAL/INSTITUTIONAL OUTREACH

The goals and objectives for outreach to San Jose's Regulated Industrial audience are:

Goal 1 Reduce flow and pollutant loads from industrial/commercial sources.

Goal 2 Ensure regulatory compliance.

Objective 1 Recommended behaviors are adopted.

Objective 2 Businesses understand why use of recommended behaviors is important.

Objective 3 Regulated IUs understand consistent compliance.

The City delivers its outreach messages to commercial and industrial audiences using an Industrial User (IU) newsletter, an IU Academy, inspectors deliver outreach materials and messages during inspections, its web site, tours, events, and speaking engagements upon request.

3.1 Industrial User Newsletter - "Tributary Tribune"

During the reporting period, two issues of the *Tributary Tribune* (an IU newsletter) were mailed to the Pretreatment Program contacts at 400 permitted companies, and to 150 other interested parties.

A discussion of the subject matter covered in these issues can be found in Section V-B 4.2 of this report. Copies of the *Tributary Tribune* can be found in Section III of the Appendix, and are posted on the ESD web site.

3.2 Industrial User (IU) Academy

On November 20, 1996, the first IU Academy class was held. At the inception of the Academy, there were six core classes that were to be taught independently of one another: "Wastewater Compliance Sampling", "Permits", "Group 1- Mass Equivalent Concentration Limits (MECLs)", "Group 2 - Reasonable Control Measures (RCMs)", "Facility Storm Water Run Off Requirements", and "City of San Jose's Industrial Pretreatment Program Enforcement Response Plan". One extracurricular class was taught, "Sewer Lateral Cleaning".

In order to meet the demand, the "Wastewater Compliance Sampling" and "Permits" classes were taught frequently in the first year of the Academy. The rest of the classes were taught only once or twice that year, because they were specific to certain Industrial Users, and the demand was not as high for these classes.

IU Academy participants were surveyed during each class. As a direct result of the survey responses, the Academy was transformed. Instead of having six independent classes that contained repetitious historical information, all of the classes would be combined into one class. The surveys also showed a high demand for a tour of the Plant, including the laboratory.

In the first half of 1998, staff worked on combining all six classes into one cohesive, two-day class that would include a tour of the Plant and laboratory. During this process, City staff attended a training course - "The Pretreatment Training Course" - sponsored by the USEPA-Office of Water and Water Environment Federation (WEF). The course was held June 23-24, 1998 in Chicago, Illinois. Material gleaned from this course was then added to the IU Academy.

The resultant IU Academy two-day class was called, "Pretreatment Program for Permitted Industrial Users" (PPPIU). This class was first taught in December 1998. Since that time, this class has been offered at least once every six months. Survey responses from the class indicate that most of the participants agree that the topics covered and the length of the class are appropriate. The tour of the Plant limits the number of participants that can take the class at any one time to approximately 20. The original classes had as many as 40 participants at once. From November 1996 to the present, the IU Academy has reached 267 people from 155 companies. The initial

blitz in 1997 reached most of the industrial users interested in learning more about the pretreatment program. The audience now is mainly comprised of employees that work at a new company, new employees, or employees that have moved into the environmental/wastewater responsibilities at established companies. One class every six months appears to be meeting the demand of the current audience.

3.3 Best Management Practices for Regulated Industry

For Industrial Users regulated under the City's Pretreatment Program, BMPs are "...schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent or reduce the introduction of pollutants to the Sanitary Sewer System..." Group 3 businesses are required to use BMPs to reduce pollutant contributions to the Sanitary Sewer System if copper or nickel concentrations in their wastewater exceed the limits set forth in the local ordinance

Table 3, in Part II of this appendix, lists the materials developed for use by the pretreatment and stormwater programs. City staff will continue to identify and adopt, or develop new material, as appropriate.

3.4 Events

On August 26, 1999, outreach staff participated in a one day Demonstration Fair in cooperation with the Santa Clara County Pollution Prevention Program. New Bay Area Air Quality Management District regulations restrict the number cold solvent cleaning stations and promote aqueous parts cleaning. This Demonstration Fair was targeted at automotive repair facilities. It was held at the Sequoia Institute's teaching shops in Fremont, CA. Regulators described the new cleaning requirements and equipment suppliers demonstrated their equipment and product alternatives.

On November 18, 1999, inspection and sampling staff participated in the Surface Technology Association's *Vendors Showcase '99*. Over 300 people from the surface finishing industry attend this event. The Surface Technology Association is a trade association comprised of companies engaged in surface finishing. Most member companies are job shops typically employing 25 or fewer persons; others are captive shops and suppliers to the industry. 20 to 30 people stopped at our exhibit table to discuss industrial wastewater compliance or pollution prevention of urban runoff.

3.5 Web Site

A new feature of the ESD web site is the posting of recent technical reports. The technical reports include information related to such topics as TMDL development, and the development of site-specific criteria for copper and nickel for the South Bay. The Environmental Enforcement page of the ESD web site also posts forms for use by Industrial Users regulated by the Pretreatment Program. Included are Discharge Applications, Self- Monitoring Report forms and Plan Check Questionnaires.

4.0 NON-REGULATED COMMERCIAL/INDUSTRIAL OUTREACH

The goals and objectives for outreach to San Jose's non-Regulated Industrial audience are:

Goal 1 Reduce flow and pollutant loads from non-regulated industrial/commercial and institutional sources.

Goal 2 Ensure regulatory compliance.

Objective 1 Recommended behaviors are adopted.

Objective 2 Businesses understand why use of recommended behaviors is important.

For businesses not regulated under the City's Pretreatment Program, materials are distributed as appropriate through a variety of methods, including speaking presentations, technology transfer by City Inspectors, distribution at events, and display racks at various locations.

4.1 Best Management Practices and Outreach Materials

Inspectors provide BMPs and educational materials in any situation where use could improve the quality of the discharge from the site. ESD printed materials, including BMPs, are listed in Part II of this appendix. Specialized BMPs and materials developed during the reporting period or scheduled for completion in the next six months include:

A brochure titled "*Wastewater Plan Checks*" to assist contractors, architects, engineers, and business owners with San Jose restaurant grease plan check process. A copy of the brochure is included in the pocket on the rear cover of this report.

4.2 Green Business Recognition Program

The Green Business Program's purpose is to encourage the use of environmentally sound business practices through positive incentives - specifically public recognition and coordinated environmental assistance. Program standards include compliance as a baseline, plus demonstrated performance in pollution prevention (including wastewater reduction), water conservation, energy conservation, and solid waste reduction/recycling. Participating firms certified as "Green Businesses" will benefit from increased efficiencies, program publicity and use of the logo in their own

marketing. The program is launching the review process to a number of prospective green businesses.

5.0 OUTREACH TO AGENCY AND MUNICIPAL SOURCES

Pretreatment Program materials are distributed as appropriate through a variety of methods, including speaking presentations, technology transfer by City Inspectors, distribution at events, and display racks at various locations. City staff hosted a booth at the City and County Earth Day event held on the lawn outside San Jose's City Hall. City and County employees and Residents received wastewater and stormwater pollution prevention materials and messages.

5.1 Materials Request from Outside Agencies

City staff responded to numerous requests for materials from other agencies:

- EPA Region 2 and Region 3 program managers both requested copies of San Jose's *Do It Right* automotive posters (tri-lingual) and *Keep Your Ship in Tune*.
- Restaurant BMP packages were sent to Coachella Valley Water District and the City of San Diego.
- The City of Portland, Oregon requested adaptation and reprint rights for the *Dewatering BMP* that San Jose co-developed with Palo Alto.
- Vancouver, British Colombia asked for an electronic copy of the *Education Institution BMP* to use and adapt.
- San Jose's *Grease Fact Sheet* was mailed to the Cities of Hayward and San Diego, CA.
- The City of Sacramento requested watershed protection curriculum materials. They were sent a copy of the *Wastewater Pathways* poster and promised a copy of the forthcoming associated curriculum.

PART II

BEST MANAGEMENT PRACTICES AND OUTREACH MATERIALS

Table 1 is a comprehensive list of the outreach material currently available for use by City staff. In all, over **3200** pieces of material were distributed to Watershed Protection Division audiences during the reporting period.

Table 2 shows the printed materials distributed by City Inspectors in the Illicit Connections/Illegal Discharges (IC/ID) Program.

Table 3 is a list of materials developed by the City and used by Watershed Protection staff.

Part III

Tributary Tribune – Summer 1999

Tributary Tribune – Winter 1999 – 2000

